SERVICE MANUAL 2110L

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model 2110L

Stereophonic Tuner

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MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ Company has created the ultimate in stereo sound. Only original MARANTZ parts can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ stereo are generally available within 72 hours throughout the nation via a toll-free line to our National Parts Depot in California. The sales professionals who take your call immediately refer to their own desk top computer terminal and can quickly determine the availability and price information you require. If, for some reason, your order should exceed our available stock, we usually can instantly provide an alternate replacement part or current delivery information. When the order is placed and confirmed, the computer simultaneously generates "hard copy" orders at the distribution center. As hard copies come directly from the computer to the national parts depot, your requested stock is assembled and prepared for shipment and placed on the first available carrier for delivery to you.

ORDERING PARTS

Phone orders will eliminate mail delays, and we encourage the use of this method. If you order by mail, use MARANTZ parts order forms which are available from our National Parts Depot located at the following address:

SUPERSCOPE NATIONAL PARTS DEPARTMENT
20525 Nordhoff Street
Chatsworth, California 91311
Phone: 1-800-423-5108
1-213-998-9333

The following information must be supplied to eliminate delays in processing your order:

1. Complete address.
2. Complete part numbers.
3. Complete description of parts.
4. Model number for which part is required (indicate MARANTZ).
5. Account number (for account customers only).

Direct consumers will be provided with the current retail price quotation on available parts in order to advise them of the cost of the parts and shipping.

OVERSEAS PARTS ORDERING

Parts may also be ordered from the following overseas addresses:

CANADA

Superscope Canada, Ltd.
3710 Nashua Drive
Mississauga
Ontario, Canada L4V1M5

AUSTRALIA

Superscope (Australasia) Pty., Ltd.
32 Cross Street (P.O. Box 604)
Brookvale 2100 N.S.W.
Australia

JAPAN

Marantz Japan, Inc.
3622 Kamitsuruma
Sagamihara Shi
Kanagawa, Japan

EUROPE

Superscope Europe, S.A.
Avenue Leopold III, 2
7120 Peronnes-Lez-Binche
Belgium

Marantz France
Rue Louis Armand 9
92600 Asnieres
Hauts-de-Seine
France

Marantz Audio U.K. Ltd.
London Road, 203
Staines
Middlesex
England

Superscope GmbH
Max-Planck-Strasse 22
D-6072 Dreieich 1
West Germany

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

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TABLE OF CONTENTS

Section	Title	Page
1.	P.W. BOARDS	1
2.	TEST EQUIPMENT REQUIRED FOR SERVICING	2
3.	SCOPE DISPLAY ADJUSTMENT	2
3.1	AM Tuning Display Adjustment	2
4.	AM ALIGNMENT PROCEDURES	2
4.1	AM IF Alignment	2
4.2	MW Frequency Range and Tracking Alignment	2
4.3	LW Frequency Range and Tracking Alignment	3
5.	FM ALIGNMENT PROCEDURES	3
5.1	FM Frequency Range and Tracking Alignment	3
5.2	Stereo Separation Alignment	4
5.3	Muting Threshold Adjustment	4
5.4	FM 25 μS Output Level Adjustment	4
6.	VOLTAGE CONVERSION	4
7.	DIAGRAMS	5
7.1	Block Diagram	5
7.2	Power Supply Board Schematic Diagram and Component Locations - P800	6
7.3	Scope Amp Board Schematic Diagram and Component Locations - P900	7
7.4	Tuner Board Schematic Diagram and Component Locations - P200	8
7.5	Scope Display Switches Board Schematic Diagram and Component Locations - PR00	11
7.6	Function Switches Board Schematic Diagram and Component Locations - PS00	12
7.7	Mode Switches Board Schematic Diagram and Component Locations - PT00	12
7.8	Function Indicator Board Schematic Diagram and Component Locations - PY01	13
7.9	Dial Lamp Board Schematic Diagram and Component Locations - PZ01	13
7.10	Function Circuit Board Schematic Diagram and Component Locations - PU01	13
8.	EXPLODED VIEWS AND PARTS LIST	14
8.1	[C01-99] Front Panel	14
8.2	[C02-99] Top Cover	15
8.3	[C03-99] Rear Panel	16
8.4	[P01-99] Front Chassis and General Parts	17
8.5	[P02-99] Scope Dial Assembly and P.W. Boards	18
8.6	[P03-99] Main Chassis and P.W. Boards	19
8.7	[H01-99] Packing Materials	21
8.8	Electrical Parts List	22
9.	TECHNICAL SPECIFICATIONS	27

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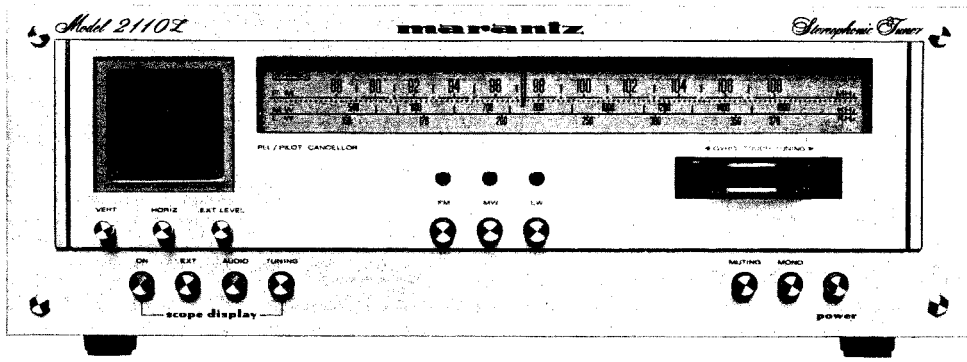
MODEL 2110L AM/FM STEREOPHONIC TUNER



INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for Marantz Model 2110L AM/FM Stereophonic Tuner.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of the operations in the tuner.

The parts list furnishes information by which replacement parts may be ordered from the Marantz Company. A simple description is included for parts which can usually be obtained through local suppliers.

1. P.W. BOARDS

As can be seen from the circuit diagram, the chassis of Model 2110L consists of the following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. Tuner . . . . . mounted on P.W. Board P200
2. Power Supply . . . . . mounted on P.W. Board P800
3. Dial Lamp . . . . . mounted on P.W. Board PZ01
4. Function Indicator . . . . mounted on P.W. Board PY00
5. Scope Amp . . . . . mounted on P.W. Board P900
6. Scope Display Switches . mounted on P.W. Board PR00
7. Function Switches . . . . mounted on P.W. Board PS00
8. Mode Switches . . . . . mounted on P.W. Board PT00
9. Function Circuit . . . . . mounted on P.W. Board PU01

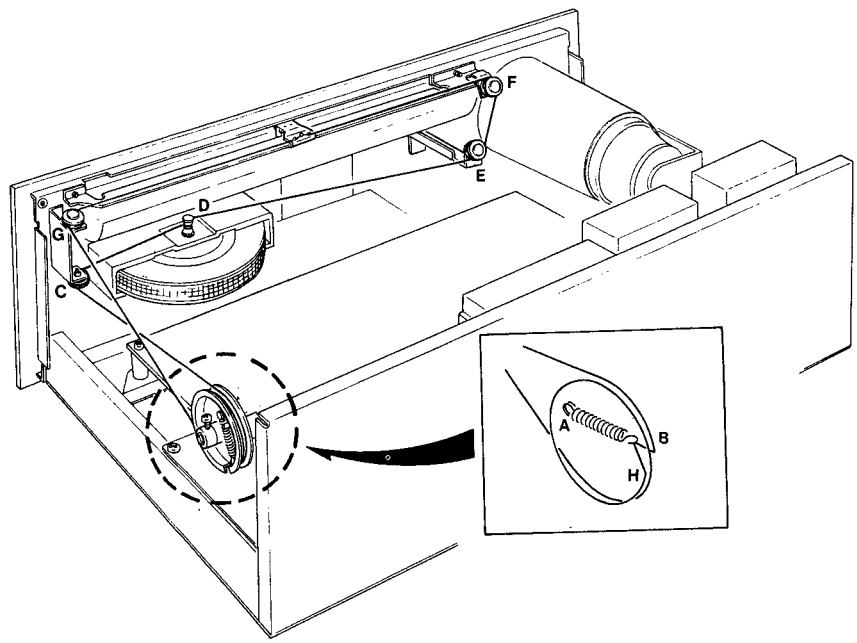


Figure 1. Dial Stringing

2. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing the Model 2110L Tuner.

Item	Manufacturer and Model No.	Use
AM Signal Generator		Signal source for AM alignment
Test Loop		Use with AM Signal Generator
FM Signal Generator MPX Signal Generator	Sound Technology Model 1000A	Signal source for FM alignment Stereo separation alignment and trouble shooting
Distortion Analyzer Audio Oscillator AC VTVM	Sound Technology Model 1700A	Distortion measurements Sinewave and squarewave signal source Voltage measurements (AC)
Oscilloscope	Tektronix Model T932 Philips Model 3232	Waveform analysis and trouble shooting
Frequency Counter	Fluke Model 1900A	MPX Oscillator adjustment (VCO)
Circuit Tester		Trouble shooting
DC VTVM	Fluke Model 8000 "Digital" Simpson Model 313, Triplet Model 801	Voltage measurements (DC)
AC Wattmeter	Simpson Model 1379	Monitors primary power to tuner
Line Voltmeter	Simpson Model 1359	Monitors potential of primary power to tuner
Variable Autotransformer	Superior Electronic Co., Powerstat Model 116B–10A	Adjusts level of primary power to tuner

3. SCOPE DISPLAY ADJUSTMENT

1. Set the EXT LEVEL control to its fully counterclockwise position.
2. Depress the SCOPE DISPLAY ON and AUDIO pushswitches in.
3. Adjust the HORIZ and VERT controls to center the dot in the small circle in the center of the scope display.
4. Adjust the BRIGHT control (R001) on the rear panel until the brightness becomes dark a little.
5. Adjust the FOCUS control (R002) so that the spot may be come smaller and circular.
6. Turn the EXT LEVEL control to its fully clockwise position.
7. Connect a 150 mV, 1 kHz signal to the SCOPE INPUTS R jack and adjust R928 (H. GAIN) until the horizontal deflection is around 3 cm.
8. In turn, connect the same signal to the L jack and similarly, adjust R927 (V. GAIN) until the vertical deflection is around 3 cm.
9. Set the HORIZ and VERT controls to the 12-o'clock position and adjust R925 (H. CENTER) until the spot comes in the horizontal deflection center.
10. Similarly, adjust R926 (V. CENTER) until the spot comes in the vertical deflection center.

3.1 AM TUNING DISPLAY ADJUSTMENT

1. Depress the SCOPE DISPLAY ON and TUNING pushswitches.
2. Depress the MW or LW pushswitch.
3. Adjust R931 until the spot comes in the center below the base line without tuning into a station.

4. AM ALIGNMENT PROCEDURES

4.1 AM IF ALIGNMENT

1. Connect a sweep generator to the J140 and an alignment scope to the R155.
2. Rotate each core of IF transformers L152 and L151 for the maximum height and flat top symmertrical response.

4.2 MW FREQUENCY RANGE AND TRACKING ALIGNMENT

1. Set AM signal generator to 455 kHz, (place the tuning pointer at the low end) and adjust the coil L156 for minimum audio output.
2. Set AM signal generator to 525 kHz. Turn the tuning capacitor fully closed (place the tuning pointer at the low end) and adjust the oscillator coil LU02 for maximum audio output.
3. Set the signal generator to 1630 kHz. Place the tuning pointer in the high frequency end and adjust the oscillator trimmer CU06 for maximum audio output.
4. Repeat steps 2 and 3 until no further adjustment is necessary.
5. Set the generator to 600 kHz, tune the tuner to the same frequency and adjust a slug core of AM ferrite-rod antenna L001 for maximum output.
6. Set the generator to 1400 kHz and tune the tuner to the same frequency and adjust the trimming capacitor CU01 for maximum output.
7. Repeat procedures 5 and 6 until no further adjustment is necessary.

NOTE: During tracking alignment reduce the signal generator output as necessary to avoid AGC action.

4.3 LW FREQUENCY RANGE AND TRACKING ALIGNMENT

1. Set AM signal generator to 145 kHz. Turn the tuning capacitor fully closed (place the tuning pointer at the low end) and adjust the oscillator coil LU01 for maximum audio output.
2. Set the signal generator to 380 kHz. Place the tuning pointer in the high frequency end and adjust the oscillator trimmer CU04 for maximum audio output.
3. Repeat steps 1 and 2 until no further adjustment is necessary.
4. Set the generator to 170 kHz, tune the tuner to the same frequency and adjust a slug core of AM ferrite-rod antenna L001 for maximum output.
5. Set the generator to 350 kHz and tune the tuner to the same frequency and adjust the trimming capacitor CU02 for maximum output.
6. Repeat procedures 4 and 5 until no further adjustment is necessary.

5. FM ALIGNMENT PROCEDURES

5.1 FM FREQUENCY RANGE AND TRACKING ALIGNMENT

1. Connect an FM signal generator to the FM antenna terminals and an oscilloscope and an audio distortion analyzer to the OUTPUT jacks on the rear panel.
2. Set the generator to 87.4 MHz and provide about 3 to 5 μV. Place the tuning pointer at the low frequency end by rotating the tuning knob and adjust the pitch of oscillator coil L105 to obtain maximum audio output.
3. Set the generator to 109 MHz and provide about 3 to 5 μV. Rotate the tuning knob and place the tuning pointer at the high frequency end and adjust the trimming capacitor C121 for maximum output.
4. Repeat steps 2 and 3 until no further adjustment is necessary.
5. Set the generator to 90 MHz and tune the tuner to the same frequency. Decrease signal generator output until the audio output level decreases with the decreasing generator output. Adjust the pitch of antenna coil L101 and RF coil L102 for maximum output.
6. Set the generator to 106 MHz and tune the tuner to the same frequency. Decrease the signal generator output until the audio output level decreases with the decreasing generator output. Adjust the trimming capacitors of antenna and RF tuning circuits for maximum output.
7. Repeat steps 5 and 6 until no further adjustment is necessary.
8. Connect the center tuning meter to the test points J136 and J137. Adjust the L201 so that the tuning meter pointer indicates its center. Depress the SCOPE DISPLAY TUNING pushswitch. Adjust the R227 until the tuning bar is located the center of the oscilloscope. Set the FM signal generator to 60 dB at 98 MHz and tune the tuner to the same frequency in the vertical trace of the oscilloscope. Adjust the L202 for minimum distortion.

5.2 STEREO SEPARATION ALIGNMENT

1. Set the FM signal generator to provide 1 kμV at 98 MHz. Tune the tuner to the same frequency so that the tuning bar is located the center of the oscilloscope. Then turn off the modulation of the generator, connect a frequency counter to test point J138 and adjust R304 so that the frequency counter may precisely read 76 kHz.
2. Modulate the generator with stereo composite signal consisting of only L or R channel (of course a pilot signal must be included).
3. Adjust the trimming resistor R336 for maximum and same separation in both channels.

5.3 MUTING THRESHOLD ADJUSTMENT

1. Set the FM signal generator output to provide 12.5 μV (IHF) at 98 MHz and tune tuner to the same frequency. Adjust the trimming resistor R212 for the threshold level of 12.5 μV. (During this adjustment turn the FM MUTING pushswitch "on").

5.4 FM 25 μS OUTPUT LEVEL ADJUSTMENT

1. Set the FM signal generator to provide a 400 Hz, 50% modulated 98 MHz mono signal, at 1 kμV output. Precisely tune the tuner to 98 MHz.
2. Depress the FM 25 μS pushswitch, and adjust R216 until the outputs of both channels are 580 mV.

6. VOLTAGE CONVERSION

The Model 2110L is equipped with a universal power transformer that may be adjusted to operate up 110 V, 120 V, 220 V, or 240 V AC at 50 to 60 Hz. To convert the unit to a different power source voltage, reposition conversion plug as shown in Figure 2.

CAUTION: DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

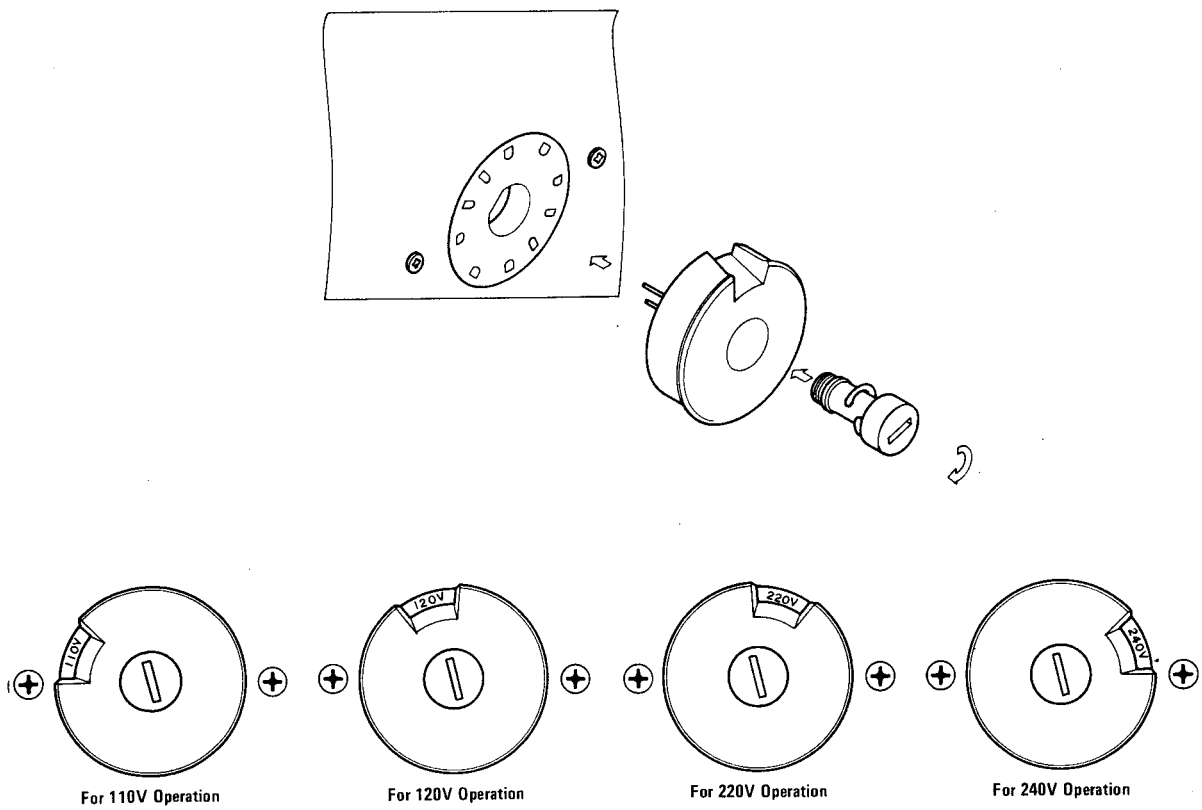


Figure 2. Voltage Conversion Chart

FTZ REGULATION

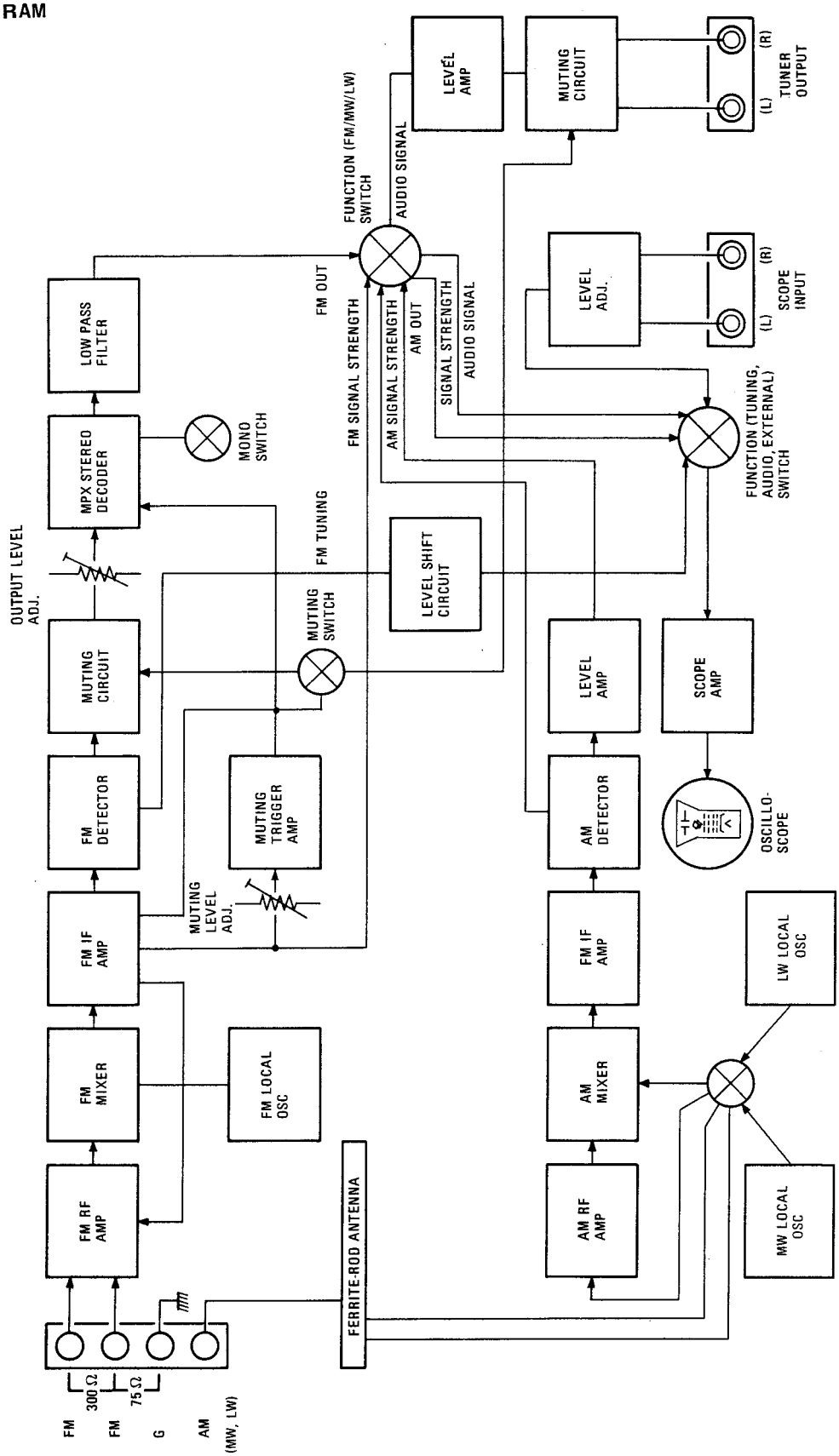
Instruction for the use in the range other than specified in FTZ codes.

Achtung für die Leute, die in dem Gebiet wohnen, wo die FTZ-Bestimmungen vorherrschend sind.

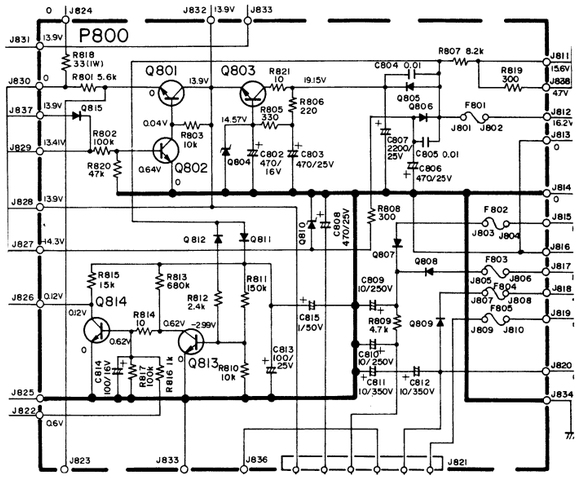
Sollte des Gerät auch für Frequenzen auszerhalb des in den FTZ-Bestimmungen angegebenen Bereiches empfangebereit sein, bitten wir, den Bereich durch Nachstellen des Kernes in der Oszillatorspule (in der Abbildung mit "FTZ" gekennzeichnet) so zu korrigieren, dass er den Bestimmungen entspricht.

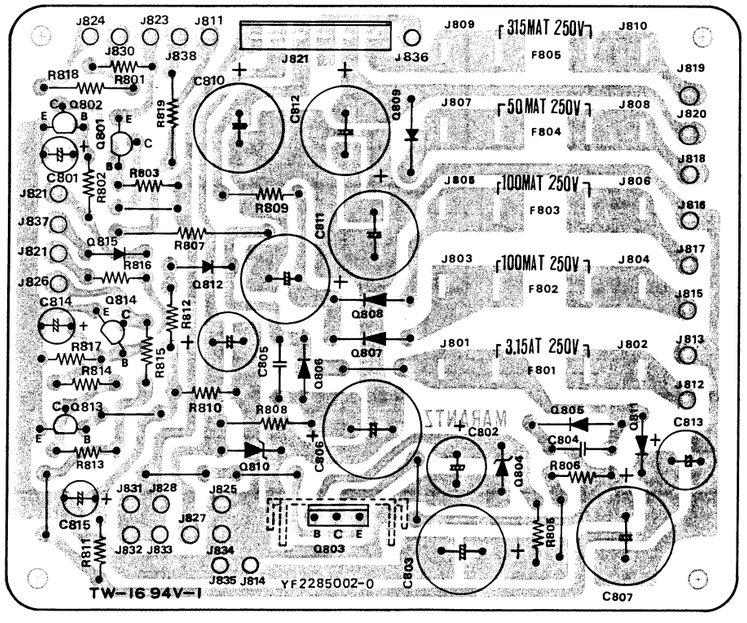
7. DIAGRAMS

7.1 BLOCK DIAGRAM

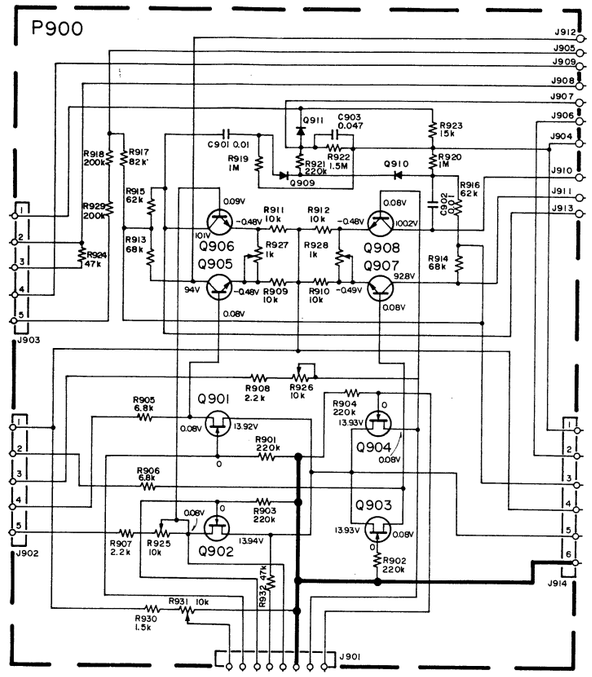


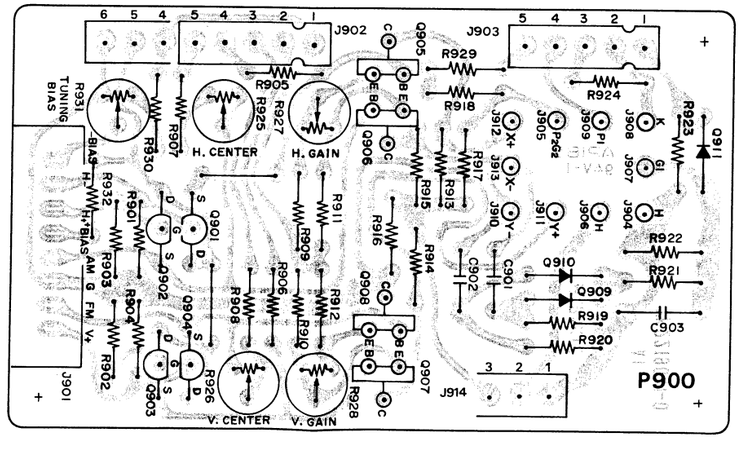
7.2 POWER SUPPLY SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - P800





7.3 SCOPE AMP SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - P900





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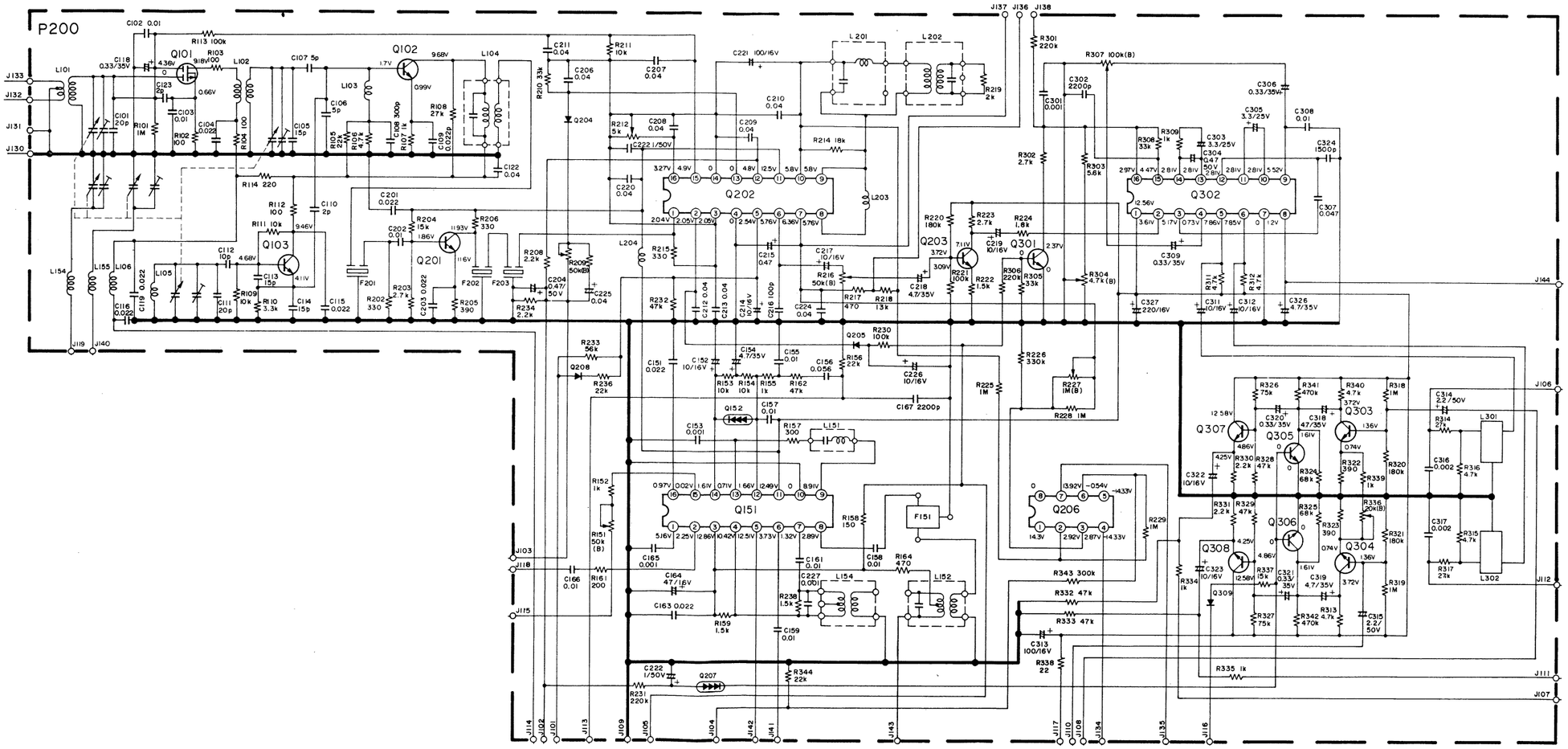
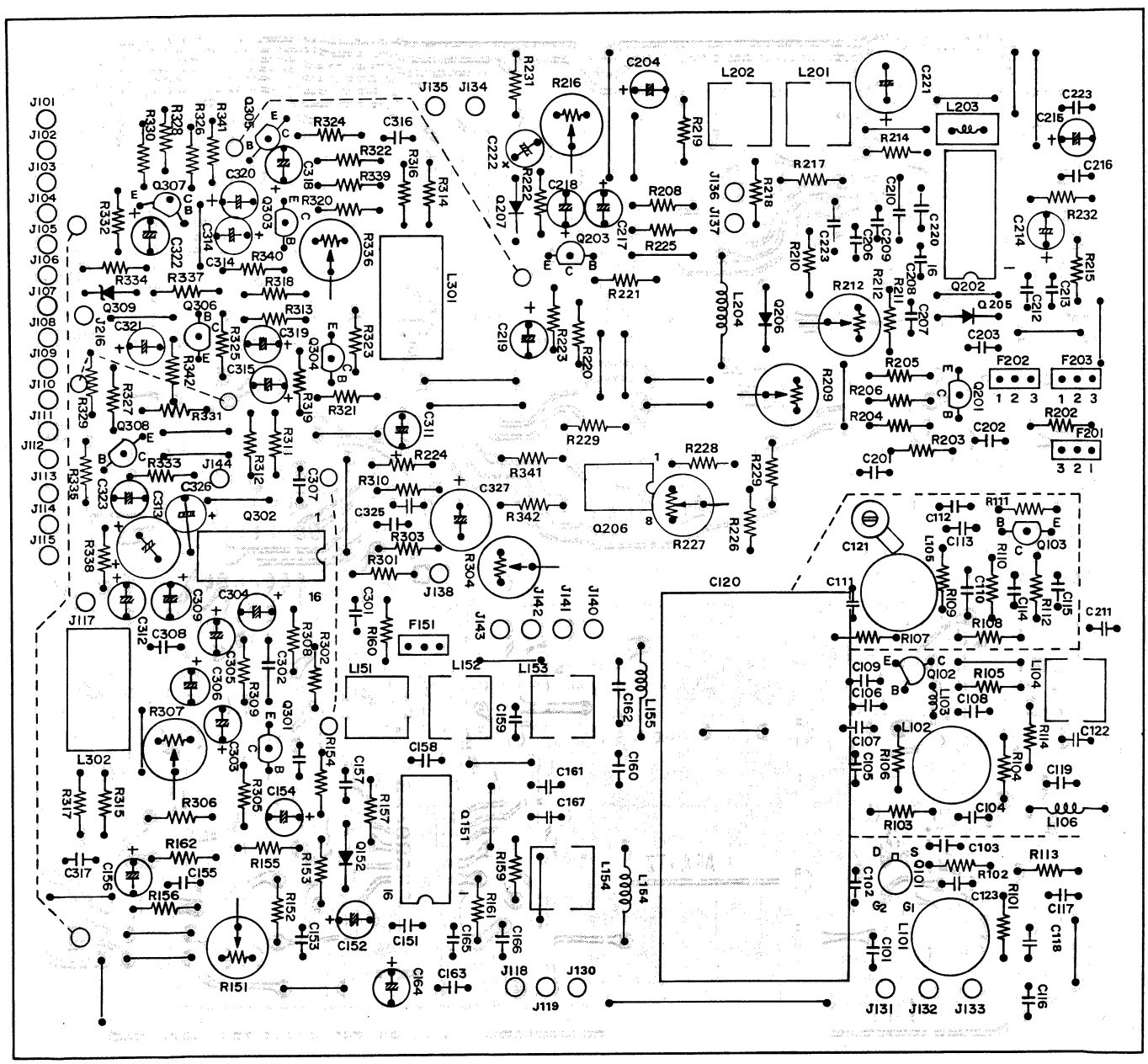
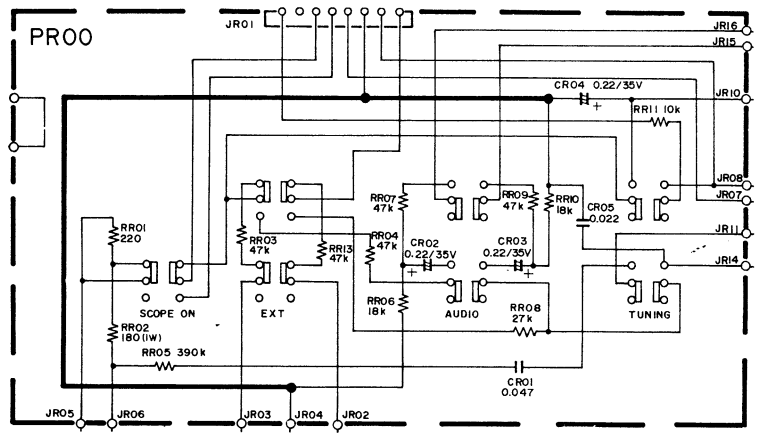
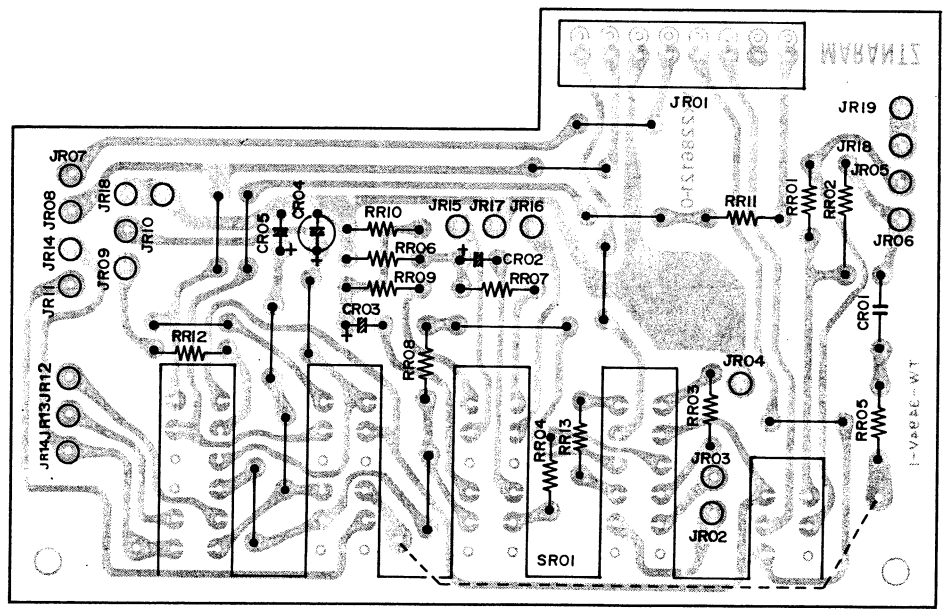
7.4 TUNER BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - P200



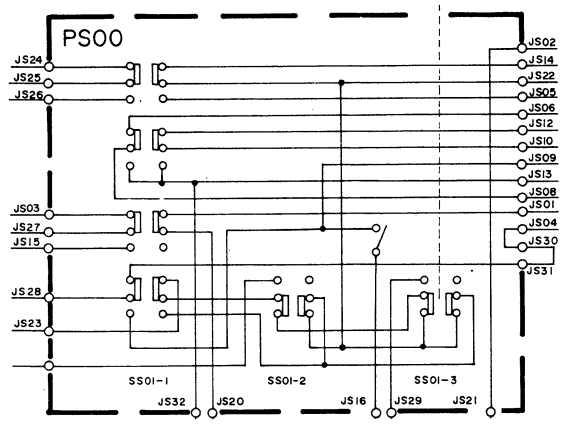


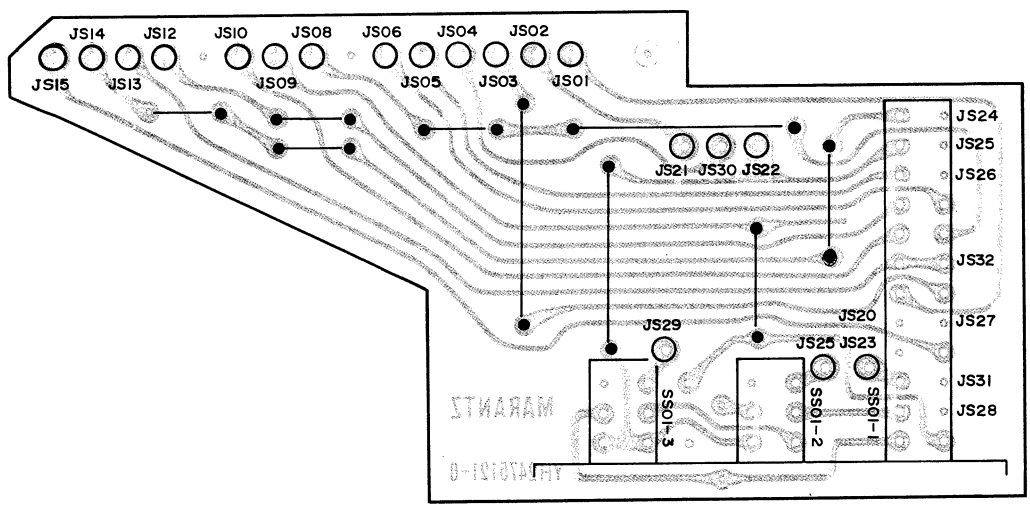
7.5 SCOPE DISPLAY SWITCHES SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PR00



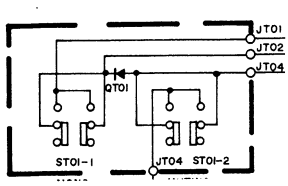


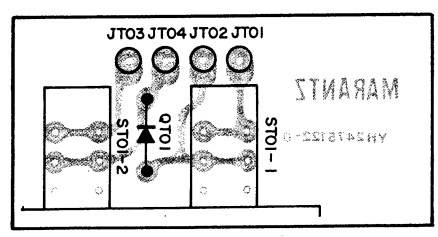
7.6 FUNCTION SWITCHES SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PS00



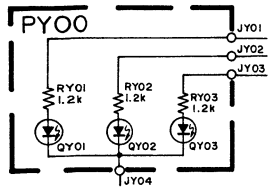


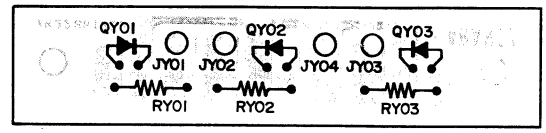
7.7 MODE SWITCHES SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PT00



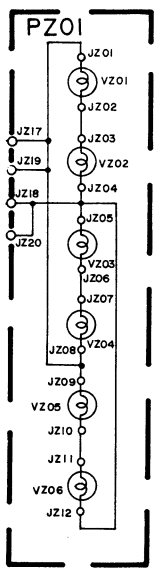


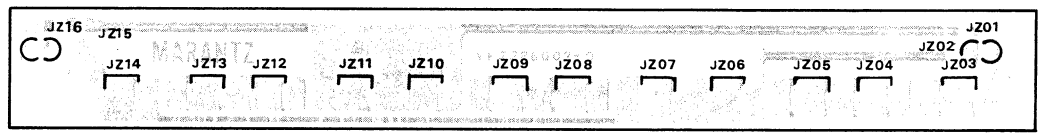
7.8 FUNCTION INDICATOR SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PY01



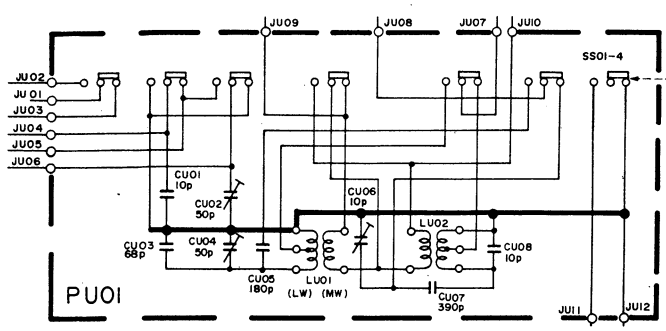


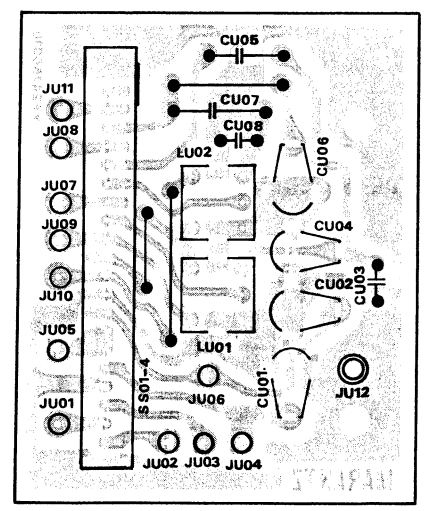
7.9 DIAL LAMP SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PZ01





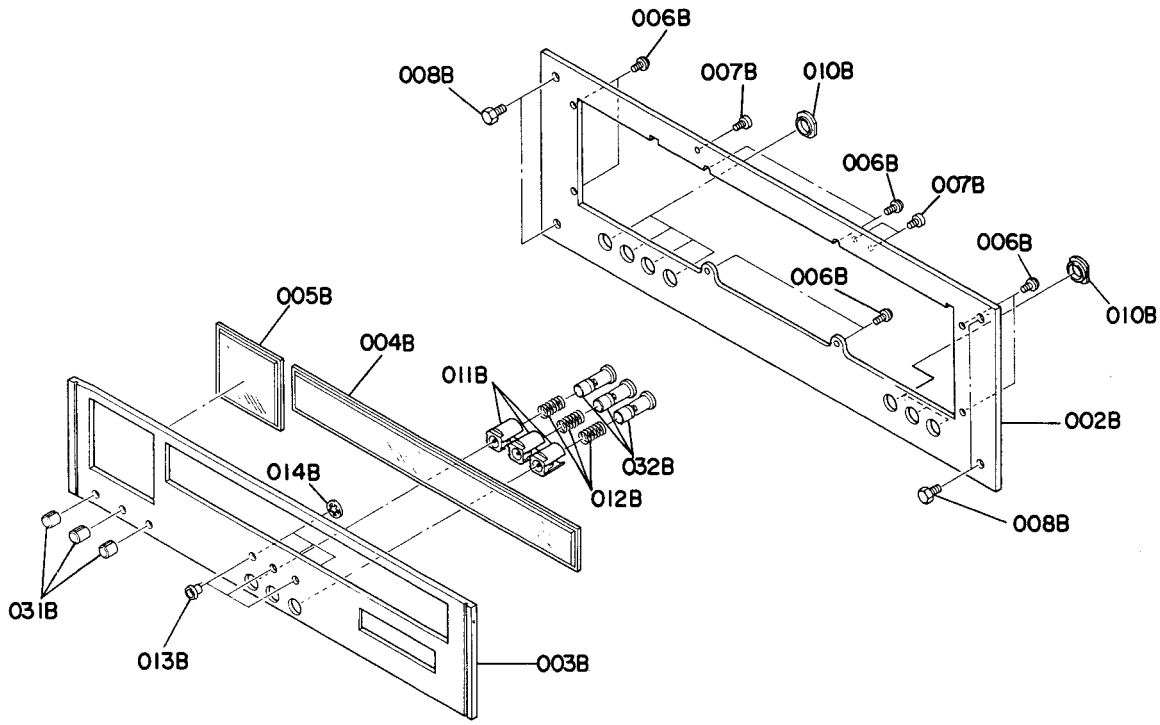
7.10 FUNCTION CIRCUIT BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - PU01





8. EXPLODED VIEWS AND PARTS LIST

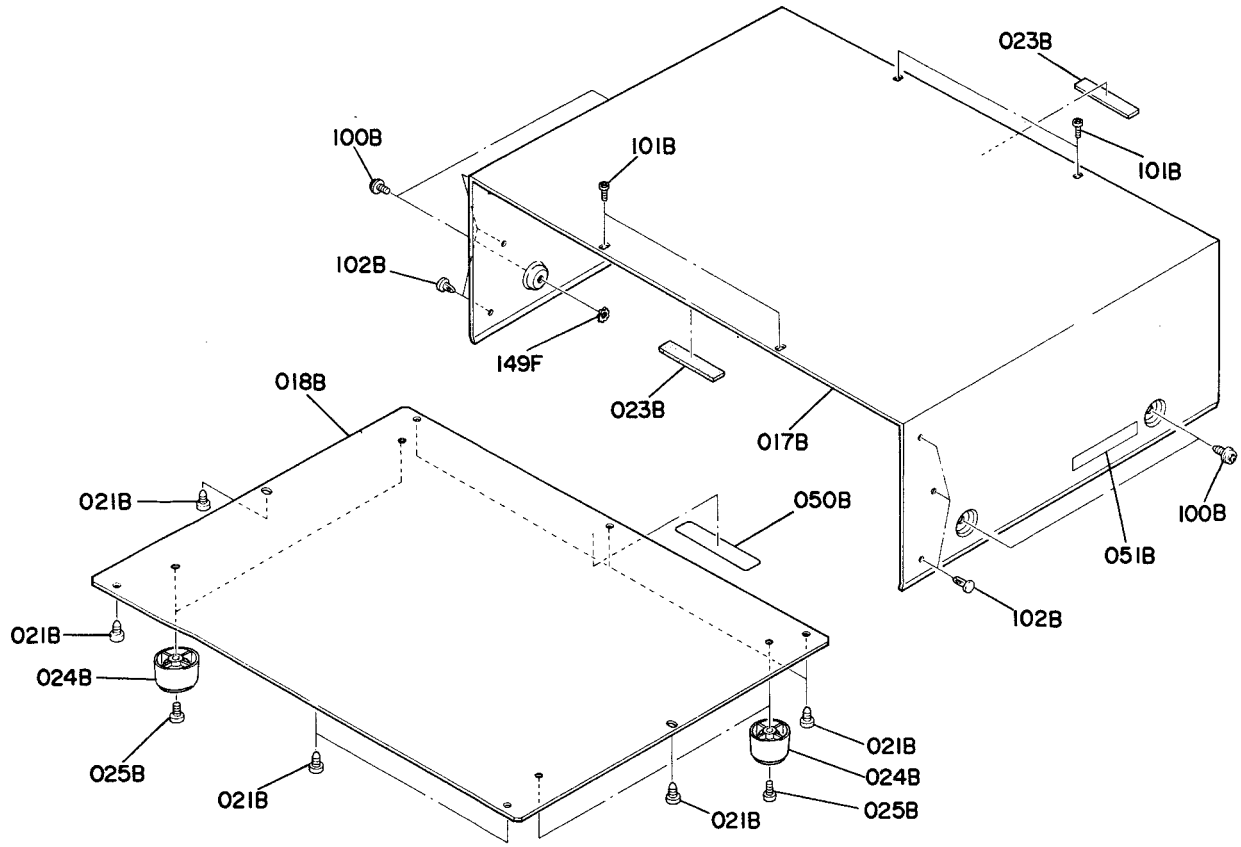
8.1 [C01-99] FRONT PANEL



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
A	1	2475063400	Front Panel Assembly
002B	1	2475063010	Escutcheon, Main
003B	1	2475063020	Escutcheon, Sub
004B	1	2286158020	Window, Dial
005B	1	2286158010	Window, Scope
006B	8	51480306A9	F. Washer Screw F3 x 6
007B	3	51570305B9	P. TAPT. Screw P3 x 5
010B	7	2978259012	Bushing
011B	3	2279259013	Bushing
012B	3	2979115012	Spring
013B	3	2979259022	Bushing
014B	3	64020600Q0	RG Ring, CS Type
032B	3	2979154022	Knob, AM/FM

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
008B	4	52017069J0	H. Head Bolt
031B	3	2286154012	Knob, Scope VR.

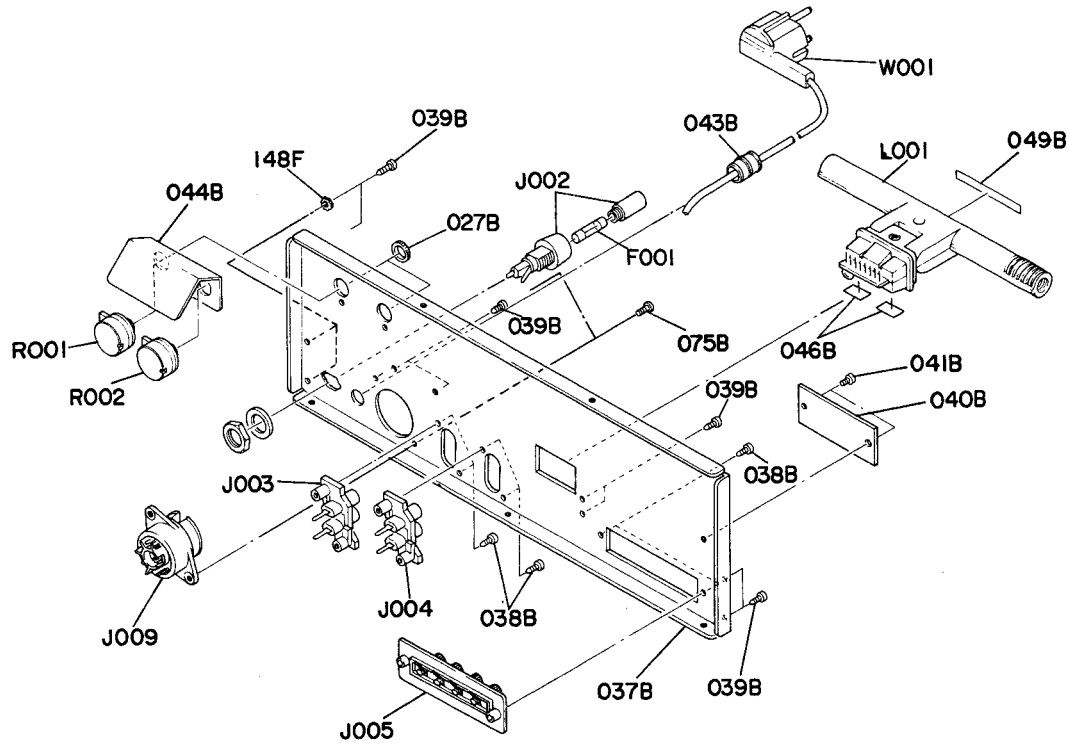
8.2 [C02-99] TOP COVER



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
017B	1	2216257112	Lid, Top Cover
018B	1	2216257022	Lid, Bottom Cover
021B	8	51280410U0	B.H. Tapped Screw B4 x 10
023B	2	2965118010	Spacer
024B	4	2932057010	Leg
025B	4	51570410S0	P. TAPT Screw P4 x 10

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
050B	1	2578861010	Lable
051B	1	2932861012	Label
100B	4	5148040659	F. Washer Screw F4 x 6
101B	4	51280306U0	B.H. Tapped Screw B3 x 6
102B	6	2991259010	Bushing
149F	1	54050400R0	T.L. Washer OR

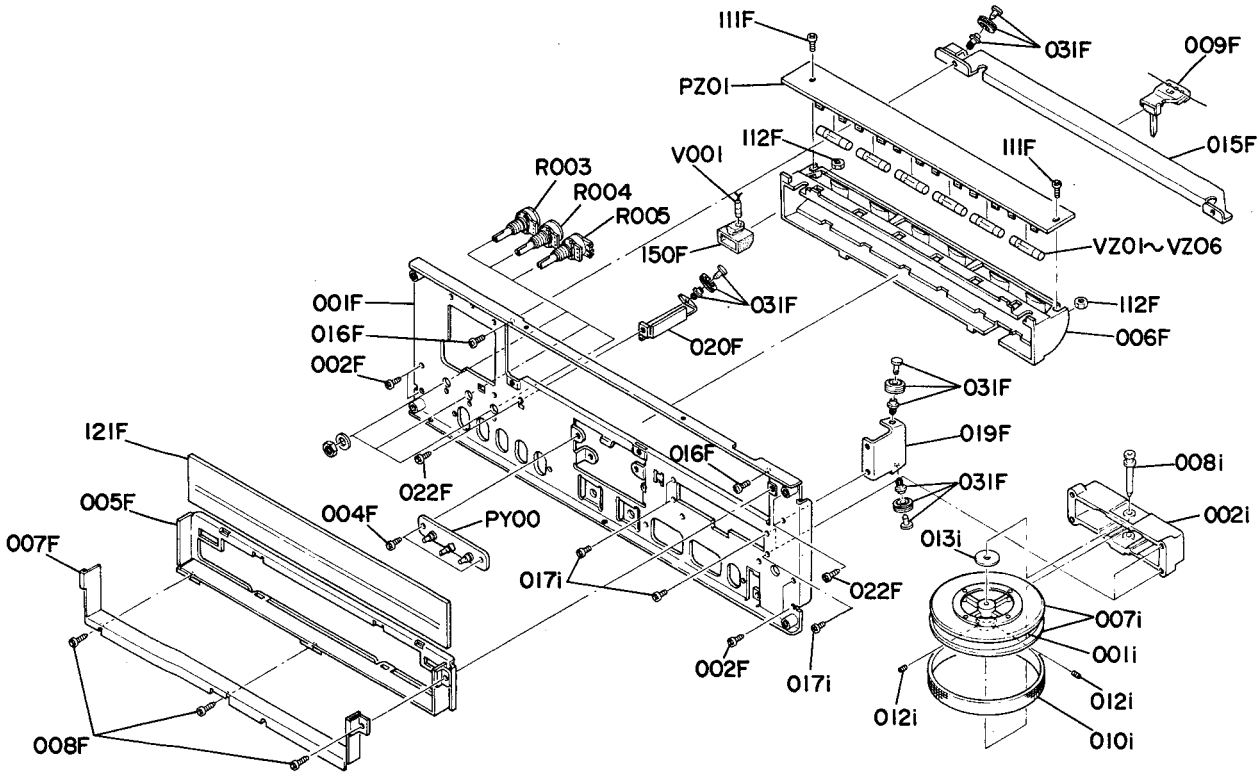
8.3 [C03-99] REAR PANEL



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
027B	2	53228059E0	S.C. Nut
037B	1	2285160223	Bracket, Rear Panel
038B	6	51280308U0	B.H. Tapped Screw B3 x 8
039B	8	51280308U0	B.H. Tapped Screw B3 x 8
040B	1	2475265010	Indicator
041B	2	51760306B0	OS Tapped Screw 3 x 6
043B	1	2286259110	Bushing
044B	1	2286120020	Insulator
046B	2	2475107010	Sheet
049B	1	2506265060	Label
075B	2	51100308S9	B.H.M. Screw B3 x 8
148F	1	54050300R0	T.L. Washer, OR

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
J002	1	YJ08000220	Jack, Fuse Holder
J003	1	YT02020140	Terminal, Output
J004	1	YT02020140	Terminal, Scope In
J005	1	YT01040182	Terminal, Ant.
J009	1	BY03110010	Plug, Voltage Selector
F001	1	FS10063800	Fuse 630mAT 250V
L001	1	LF11400910	Ant Coil, LW MW Bar Ant.
R001	1	RA05030180	Triming Resistor 50KΩ (B)
R002	1	RK02040060	Variable Resistor 200KΩ (B)
W001	1	YC01900030	A.C. Power Cord

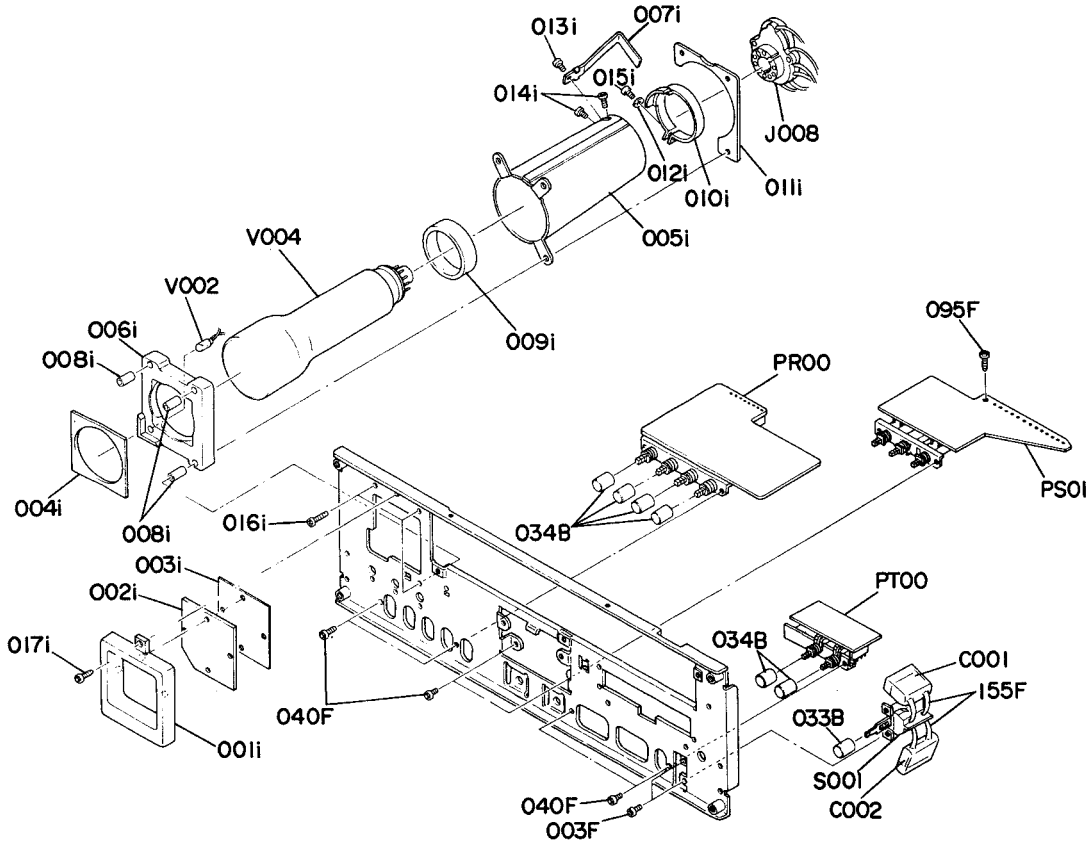
8.4 [P01-99] FRONT CHASSIS AND GENERAL PARTS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
D	1	2219273420	Flywheel Assembly
001i	1	2219273012	Flywheel
007i	2	2219063030	Escutcheon
010i	1	2115353010	Ring
012i	2	51690306Q9	Socket Screw, HP 3 x 6
002i	1	2219104502	Retainer, K
008i	1	2219112012	Shaft
013i	1	59031405G9	Washer
017i	4	51280308B0	B.H. Tapped Screw B3 x 8
001F	1	2285160012	Bracket
002F	4	51280306B0	B.H. Tapped Screw B3 x 6
004F	2	51280306B0	B.H. Tapped Screw B3 x 6
005F	1	2218271013	Holder
006F	1	2218274013	Reflector
007F	1	2219053022	Cover
008F	3	51280306B0	B.H. Tapped Screw B3 x 6
009F	1	2991103500	Pointer, K
015F	1	2286051010	Guide
016F	2	51100306A9	B.H.M. Screw B3 x 6
019F	1	2285271010	Holder
020F	1	2286271020	Holder
022F	3	51100306A9	B.H.M. Screw B3 x 6
031F	4	2286262500	Pulley, K

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
111F	2	51100308A9	B.H.M. Screw B3 x 8
112F	2	53110303E9	Hexagon Nut
121F	1	2475302010	Dial
150F	1	2218274033	Reflector
R003	1	RB01030240	Variable Resistor 10KΩ (B)
R004	1	RB01030240	Variable Resistor 10KΩ (B)
R005	1	RM02540440	Variable Resistor 250KΩ
V001	1	IN10080340	Lamp, Stereo 60mA 8V
PY00	1	YK22861220	P.W. Board, L.E.D.
	1	ZZ24758220	P.W. Board Assembly
PZ01	1	YF22860020	P.W. Board, Dial Illuminator
	1	ZZ22861020	P.W. Board Assembly
VZ01 ~ VZ06	6	IN10080070	Dial Lamp 0.2A 8V

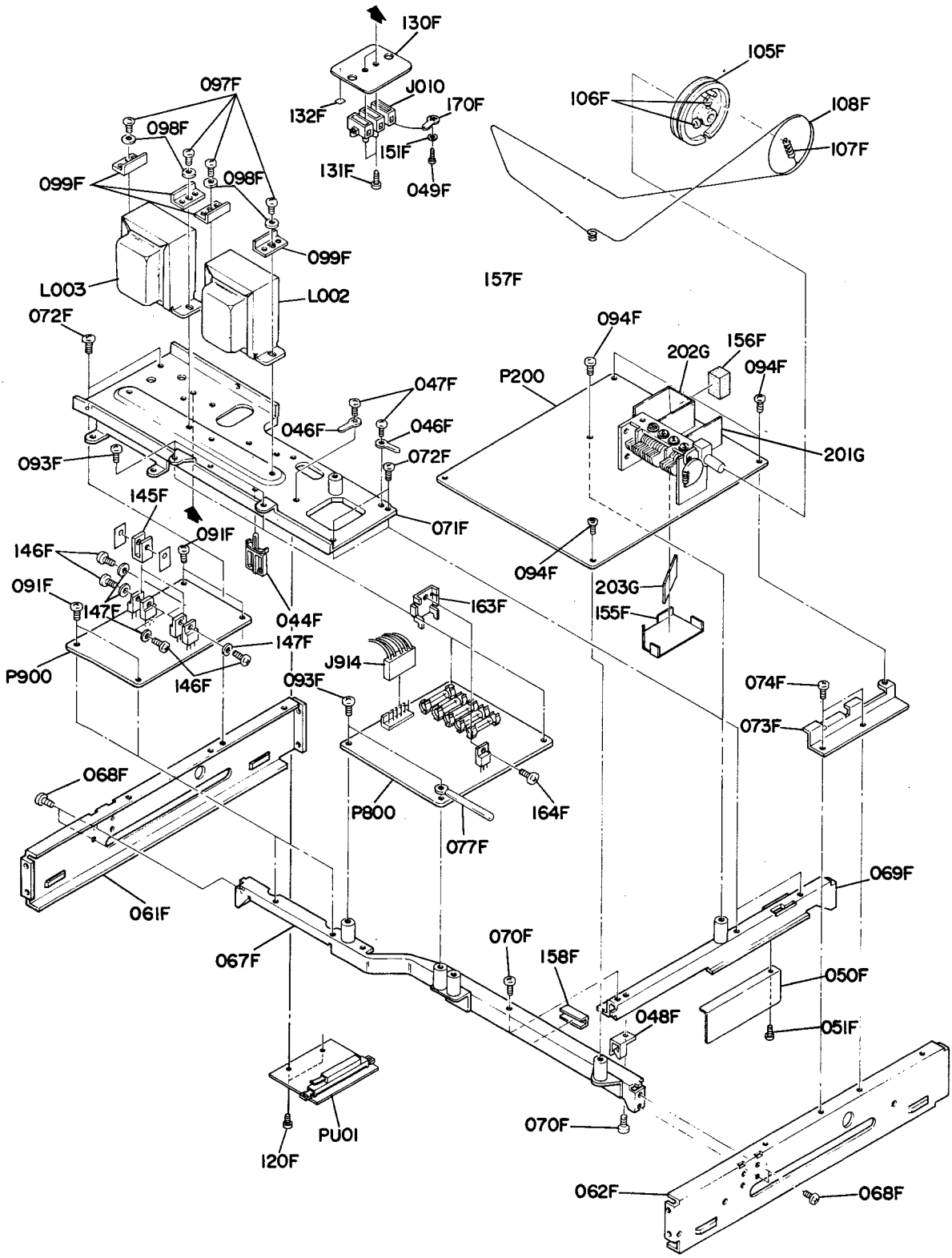
8.5 [P02-99] SCOPE DIAL ASSEMBLY AND P.W. BOARDS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
033B	1	2963154022	Knob
034B	6	2970154032	Knob
003F	2	51100306A9	B.H.M. Screw B3 x 6
040F	6	51100306A9	B.H.M. Screw B3 x 6
095F	1	51280308B0	B.H. Tapped Screw B3 x 8
155F	2	3926120010	Insulator
C001	1	DF17223800	Film Cap. 0.022μF 1000V
C002	1	DF17223800	Film Cap. 0.022μF 1000V
S001	1	SP02010300	Push Switch, Power
PR00	1	YK22861210	P.W. Board, Scope Switch
	1	ZZ22852210	P.W. Board Assembly
PS01	1	YH24751210	P.W. Board Function Switch
	1	ZZ24751210	P.W. Board Assembly
PT00	1	YH24751220	P.W. Board, Mode Switch
	1	ZZ24751220	P.W. Board Assembly

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
D	1	2286302400	Scope Dial Assembly
002i	1	2286302030	Dial
003i	1	2286303010	Mask
004i	1	2286053030	Cover
001i	1	2286401010	Frame
005i	1	2219109012	Shield
006i	1	2219357012	Rod., Scope Pade
007i	1	2286005012	Clamper
008i	3	2219055020	Collar
009i	1	2904056022	Buffer
010i	1	2904005030	Clamper
011i	1	2207005010	Clamper
012i	1	5402030IS0	Flat Washer, P.
013i	1	5110308S9	B.H.M. Screw B3 x 8
014i	2	5110304S9	B.H.M. Screw B3 x 4
015i	1	5110305S9	B.H.M. Screw B3 x 5
016i	3	5110316S9	B.H.M. Screw B3 x 16
017i	1	51280306B0	B.H. Tapped Screw B3 x 6
J008	1	YJ05000182	Jack, CRT Socket
V002	1	IN10080340	Lamp, 60mA 8V
V004	1	VB00235012	Picture Tube

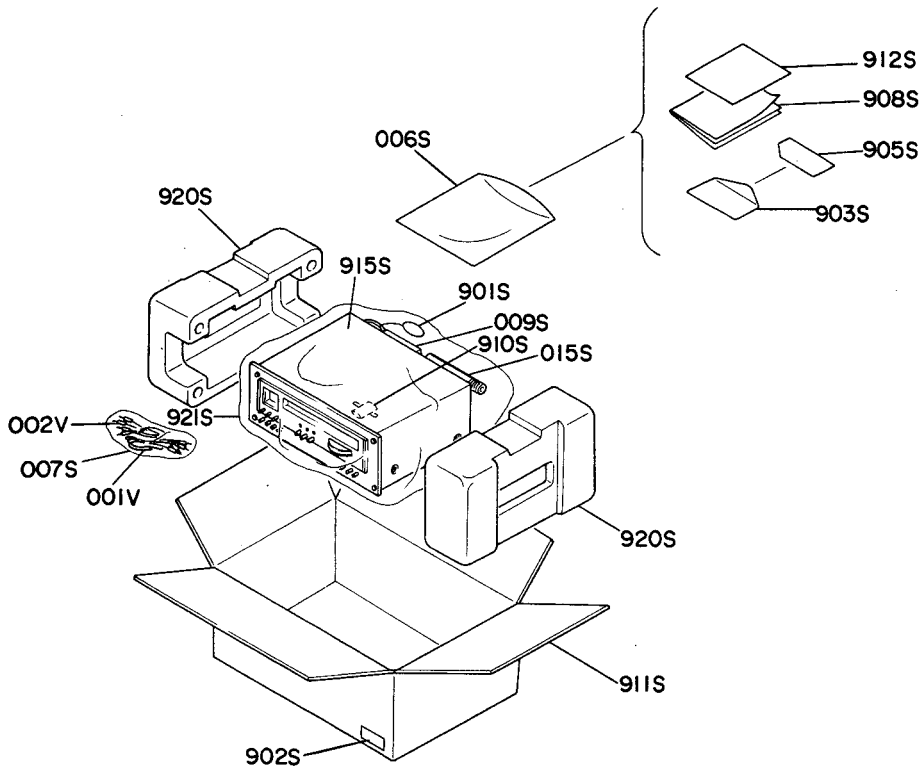
8.6 [P03-99] MAIN CHASSIS AND P.W. BOARDS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
B	1	2258159400	Drum Assembly	
105F	1	2219159010	Drum	
106F	2	51064019A9	P.H.M. Screw	
107F	1	71101689L0	Spring	
044F	2	2886005060	Clamper	
046F	2	62030049W0	Lug	
047F	2	51280306B0	B.H. Tapped Screw	B3 x 6
048F	1	2887005110	Clamper	
049F	1	51280306B0	B.H. Tapped Screw	B3 x 6
050F	1	2475271010	Holder	
051F	1	51280308B0	B.H. Tapped Screw	B3 x 8
061F	1	2216105023	Chassis (L)	
062F	1	2216105033	Chassis (R)	
067F	1	2285126012	Stay, Front	
068F	4	51280306B0	B.H. Tapped Screw	B3 x 6
069F	1	2285126030	Stay, Main	
070F	2	51280306B0	B.H. Tapped Screw	B3 x 6
071F	1	2475105010	Chassis, Main	
072F	4	51280306B0	B.H. Tapped Screw	B3 x 6
073F	1	2285126020	Stay, Side	
074F	2	51280306B0	B.H. Tapped Screw	B3 x 6
077F	1	2871005010	Clamper	
091F	4	51280306B0	B.H. Tapped Screw	B3 x 6
093F	4	51280306B0	B.H. Tapped Screw	B3 x 6
094F	4	51280306B0	B.H. Tapped Screw	B3 x 6
097F	4	51470408A9	L. Washer Screw	L4 x 8
098F	4	54040402A0	Spring Washer	
099F	4	2896104010	Retainer	
108F	1	72071605A0	String (150)	
120F	2	51280306B0	B.H. Tapped Screw	B3 x 6
130F	1	3953120030	Insulator	
131F	2	51280314B0	B.H. Tapped Screw	B3 x 14
132F	1	2882861020	Label	
145F	2	2219267040	Heatsink	
146F	4	50020305B9	Screw	3 x 5
147F	4	54040302A0	Spring Washer	
151F	1	54040302A0	Spring Washer	
155F	1	2285109050	Shield	
156F	1	3918104010	Retainer	
157F	1	2205861010	Label	
158F	1	4640259010	Bushing	
163F	1	2963267020	Heatsink	
164F	1	51280306B0	B.H. Tapped Screw	B3 x 6
170F	1	62030049W0	Lug	

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
201G	1	2259109040	Shield
202G	1	2259109053	Shield
203G	1	2259109062	Shield
J010	1	YL09030010	Terminal
J914	1	YJ06001310	Jack (6P)
L002	1	TS15713020	Power Transformer
L003	1	TS15713050	Power Transformer
P200	1	YG22850010	P.W. Board, Tuner MPX
	1	ZZ24758010	P.W. Board Assembly
P800	1	YF22850020	P.W. Board, Power Supply
	1	ZZ22858020	P.W. Board, Assembly
P900	1	YK22190310	P.W. Board, Scope Amp.
	1	ZZ22860310	P.W. Board Assembly
PU01	1	YF24750010	P.W. Board, Function
	1	ZZ24750010	P.W. Board Assembly

8.7 [H01-99] PACKING MATERIALS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
006S	1	9013025010	Polyethy Bag
007S	1	9011325010	Polyethy Bag
009S	1	2864804010	Sleeve
015S	1	2819056010	Buffer
901S	1	9560000043	Hang Tag
902S	2	9526019060	Serial No. Card
903S	1	2818813010	Envelope
905S	1	9630000180	Guarantee Card
908S	1	2475851310	Instructions

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
910S	1	2731821010	Silicagel
911S	1	2475801010	Packing Case
912S	1	2475851030	Instructions
915S	1	2918107170	Sheet
920S	2	2965809012	Cushion
921S	1	9014335330	Polyethy Bag
001V	1	ZA02000070	EXT. Antenna, FM
002V	1	ZD01500160	Connective Cord

8.8 ELECTRICAL PARTS LIST

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
			P200-TUNER MPX CIRCUIT BOARD
P200	1	YG22850010	P.W. Board, Tuner MPX
	1	ZZ24758010	P.W. Board Assembly
			P200-CAPACITORS
C101	1	DD15200300	Ceramic 20pF ±5%
C102	1	DK18103320	Ceramic 0.01μF +80% – 20%
C103	1	DK18103320	Ceramic 0.01μF +80% –20%
C104	1	DK18223320	Ceramic 0.022μF +80% –20%
C105	1	DD15150300	Ceramic 15pF ±5%
C106	1	DD10050300	Ceramic 5pF ±0.25pF
C107	1	DD10050370	Ceramic 5pF ±0.25pF
C108	1	DD15301360	Ceramic 300pF ±5%
C109	1	DK18223320	Ceramic 0.022pF +80% –20%
C110	1	DD10020300	Ceramic 2pF ±0.25pF
C111	1	DD15200350	Ceramic 20pF ±5%
C112	1	DD11100300	Ceramic 10pF ±0.5pF
C113	1	DD15150300	Ceramic 15pF ±5%
C114	1	DD15150300	Ceramic 15pF ±5%
C115	1	DK18223320	Ceramic 0.022μF +80% –20%
C116	1	DK18223320	Ceramic 0.022μF +80% –20%
C118	1	EV33403560	Elect 0.33μF 35V
C119	1	DK18223320	Ceramic 0.022μF
C120	1	CA32200050	Variable
C121	1	CT11000080	Trimming 10pF ±0.5pF
C122	1	DK18403320	Ceramic 0.04μF +100% –0
C123	1	DD10020370	Ceramic 2pF ±0.25pF
C151	1	DK18223320	Ceramic 0.022μF +80% – 20%
C152	1	EA10601690	Elect 10μF 16V
C153	1	DF17102300	Film 0.001μF ±20%
C154	1	EA47503590	Elect 4.7μF 35V
C155	1	DF17103300	Film 0.01μF ±20%
C156	1	DF17563300	Film 0.056μF ±20%
C157	1	DF17103300	Film 0.01μF ±20%
C158	1	DK17103300	Ceramic 0.01μF ±20%
C159	1	DK17103300	Ceramic 0.01μF ±20%
C161	1	DK17103300	Ceramic 0.01μF ±20%
C163	1	DK18223320	Ceramic 0.022μF +80% –20%
C164	1	EA47601690	Elect 47μF 16V
C165	1	DF17102300	Film 0.001μF ±20%
C166	1	DK17103300	Ceramic 0.01μF ±20%
C167	1	DF17222300	Film 2200pF ±20%
C201	1	DK18223320	Ceramic 0.022μF +80% –20%
C202	1	DK18103320	Ceramic 0.01μF +80% –20%
C203	1	DK18223320	Ceramic 0.022μF +80% –20%
C204	1	EA47405090	Elect 0.47μF 50V
C206	1	DK18403320	Ceramic 0.04μF +80% –20%
C207	1	DK18403320	Ceramic 0.04μF +80% –20%
C208	1	DK18403320	Ceramic 0.04μF +80% –20%
C209	1	DK18403320	Ceramic 0.04μF +80% –20%
C210	1	DK18403320	Ceramic 0.04μF +80% –20%
C211	1	DK18403320	Ceramic 0.04μF +80% –20%
C212	1	DK18403320	Ceramic 0.04μF +80% –20%

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
C213	1	DK18403320	Ceramic 0.04μF +80% –20%
C214	1	EA10601690	Elect 10μF 16V
C215	1	EA47405090	Elect 0.47μF 50V
C216	1	DD15101370	Ceramic 100pF ±5%
C217	1	EA10601690	Elect 10μF 16V
C218	1	EA47503590	Elect 4.7μF 35V
C219	1	EA10601690	Elect 10μF 16V
C220	1	DK18403320	Ceramic 0.04μF +100% –0
C221	1	EA10701690	Elect 100μF 16V
C222	1	EA10505090	Elect 1μF 50V
C223	1	DK18403320	Ceramic 0.04μF +100% –0
C224	1	DK18403320	Ceramic 0.04μF +100% –0
C225	1	EA10505090	Elect 1μF 50V
C226	1	EA10601690	Elect 10μF 16V
C227	1	DF15102300	Film 0.001μF ±5%
C301	1	DF55102090	Film 0.001μF ±5%
C302	1	DF16222300	Film 2200pF ±10%
C303	1	EA33502590	Elect 3.3μF 25V
C304	1	EQ47405010	Elect 0.47μF 50V
C305	1	EA33502590	Elect 3.3μF 25V
C306	1	EV33403560	Elect 0.33μF 35V
C307	1	DF17473010	Film 0.047μF ±20%
C308	1	DF15103300	Film 0.01μF ±5%
C309	1	EV33403560	Elect 0.33μF 35V
C311	1	EA10601690	Elect 10μF 16V
C312	1	EA10601690	Elect 10μF 16V
C313	1	EA10701690	Elect 100μF 16V
C314	1	EA22505090	Elect 2.2μF 50V
C315	1	EA22505090	Elect 2.2μF 50V
C316	1	DF15222300	Film 0.002μF ±5%
C317	1	DF15222300	Film 0.002μF ±5%
C318	1	EA47503590	Elect 4.7μF 35V
C319	1	EA47503590	Elect 4.7μF 35V
C320	1	EV33403560	Elect 0.33μF 35V
C321	1	EV33403560	Elect 0.33μF 35V
C322	1	EA10601690	Elect 10μF 16V
C323	1	EA10601690	Elect 10μF 16V
C324	1	DF15152300	Film 1500pF ±5%
C326	1	EA47503590	Elect 4.7μF 35V
C327	1	EA22701690	Elect 220μF 16V

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REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
			P200-RESISTORS
			(All Resistors are ±5% and ¼W)
R101	1	GD05105140	1MΩ
R102	1	GD05101140	100Ω
R103	1	GD05101140	100Ω
R104	1	GD05101140	100Ω
R105	1	GD05223140	22KΩ
R106	1	GD05472140	4.7KΩ
R107	1	GD05102140	1KΩ
R108	1	GD05273140	27KΩ
R109	1	GD05103140	10KΩ
R110	1	GD05222140	2.2KΩ
R111	1	GD05103140	10KΩ
R112	1	GD05101140	100Ω
R113	1	GD05104140	100KΩ
R114	1	GD05221140	220Ω
R151	1	RA05030090	Trimming 50KΩ (B)
R152	1	GD05102140	1KΩ
R153	1	GD05103140	10KΩ
R154	1	GD05103140	10KΩ
R155	1	GD05102140	1KΩ
R156	1	GD05223140	22KΩ
R157	1	GD05301140	300Ω
R158	1	GD05151140	150Ω
R159	1	GD05152140	1.5KΩ
R161	1	GD05201140	200Ω
R162	1	GD05473140	47KΩ
R164	1	GD05471140	470Ω
R202	1	GD05331140	330Ω
R203	1	GD05272140	2.7KΩ
R204	1	GD05153140	15KΩ
R205	1	GD05391140	390Ω
R206	1	GD05331140	330Ω
R208	1	GD05222140	2.2KΩ
R209	1	RA05030090	Trimming 50KΩ (B)
R210	1	GD05333140	33KΩ
R211	1	GD05103140	10KΩ
R212	1	RA05020160	Trimming 5KΩ
R214	1	GD05183140	18KΩ
R215	1	GD05331140	330Ω
R216	1	RA05030090	Trimming 50KΩ (B)
R217	1	GD05471140	470Ω
R218	1	GD05133140	13KΩ
R220	1	GD05184140	180KΩ
R221	1	GD05104140	100KΩ
R222	1	GD05152140	1.5KΩ
R223	1	GD05272140	2.7KΩ
R224	1	GD05182140	1.8KΩ
R225	1	GD05105140	1MΩ
R226	1	GD05334140	330KΩ
R227	1	RA01050090	Trimming 1MΩ (B)
R228	1	GD05105140	1MΩ
R229	1	GD05105140	1MΩ

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
R230	1	GD05104140	100KΩ
R231	1	GD05224140	220KΩ
R232	1	GD05473140	47KΩ
R233	1	GD05563140	56KΩ
R235	1	GD05333140	33KΩ
R236	1	GD05223140	22KΩ
R238	1	GD05152140	1.5KΩ
R301	1	GD05224140	220KΩ
R302	1	GD05272140	2.7KΩ
R303	1	GD05562140	5.6KΩ
R304	1	RA04720050	Trimming 4.7KΩ (B)
R305	1	GD05333140	33KΩ
R306	1	GD05224140	220KΩ
R307	1	RA01040110	Trimming 100KΩ (B)
R308	1	GD05333140	33KΩ
R309	1	GD05102140	1KΩ
R311	1	GD05472140	4.7KΩ
R312	1	GD05472140	4.7KΩ
R313	1	GD05472140	4.7KΩ
R314	1	GD05273140	27KΩ
R315	1	GD05472140	4.7KΩ
R316	1	GD05472140	4.7KΩ
R317	1	GD05273140	27KΩ
R318	1	GD05105140	1MΩ
R319	1	GD05105140	1MΩ
R320	1	GD05184140	180KΩ
R321	1	GD05184140	180KΩ
R322	1	GD05391140	390Ω
R323	1	GD05391140	390Ω
R324	1	GD05683140	68KΩ
R325	1	GD05683140	68KΩ
R326	1	GD05753140	75KΩ
R327	1	GD05753140	75KΩ
R328	1	GD05473140	47KΩ
R329	1	GD05473140	47KΩ
R330	1	GD05222140	2.2KΩ
R331	1	GD05222140	2.2KΩ
R332	1	GD05473140	47KΩ
R333	1	GD05473140	47KΩ
R334	1	GD05102140	1KΩ
R335	1	GD05102140	1KΩ
R336	1	RA02030060	Trimming 20KΩ (B)
R337	1	GD05153140	15KΩ
R338	1	GG05220140	22Ω
R339	1	GD05102140	1KΩ
R340	1	GD05472140	4.7KΩ
R341	1	GD05474140	470KΩ
R342	1	GD05474140	470KΩ
R343	1	GD05304140	300KΩ
R344	1	GD05223140	22KΩ

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
			P200-SEMICONDUCTORS	
Q101	1	HF400451B0	F.E.T.	3SK45B
Q102	1	HT310471C0	Transistor	2SC1047 (C)
Q103	1	HT308291C0	Transistor	2SC829 (C)
Q151	1	HC10019010	IC	HA1197
Q152	1	HV00006120	Varistor	MV-203
Q201	1	HT310471C0	Transistor	
Q202	1	HC10033010	IC	HA11225
Q203	1	HT309452A0	Transistor	2SC945 (P or Q)
Q204	1	HD20011050	Diode	1S1555
Q205	1	HD20011050	Diode	1S1555
Q206	1	HC10019060	IC	μPC741C
Q207	1	HV00006120	Varistor	MV-203
Q301	1	HT309452A0	Transistor	2SC945 (P or Q)
Q302	1	HC10029010	IC	HA11223
Q303	1	HT317400S0	Transistor	2SC1740LN (S)
Q304	1	HT317400S0	Transistor	2SC1740LN (S)
Q305	1	HT309452A0	Transistor	2SC945 (P or Q)
Q306	1	HT309452A0	Transistor	2SC945 (P or Q)
Q307	1	HT317400S0	Transistor	2SC1740LN (S)
Q308	1	HT317400S0	Transistor	2SC1740LN (S)
Q309	1	HD30033090	Zener	WZ052
			P200-FILTERS	
F151	1	FF10045190	Ceramic	455kHz
F201	1	FF11070050	Ceramic	10.7MD1
F202	1	FF11070050	Ceramic	10.7MD1
F203	1	FF11070050	Ceramic	10.7MD1
			P200-COILS	
L101	1	LA12026170	Ant Coil	FM
L102	1	LA12026180	Ant Coil	FM
L103	1	LC17510010	Choke Coil	0.75μF
L104	1	LI10016010	I.F.T.	FM
L105	1	LO12046010	OSC Coil	FM
L106	1	LC13320020	Choke Coil	3.3μH
L151	1	LI10015060	I.F.T.	AM
L152	1	LI10010720	I.F.T.	AM
L154	1	LC13320020	Choke Coil	3.3μH
L155	1	LC13320020	Choke Coil	3.3μH
L156	1	LO10010420	OSC Coil	
L201	1	LI10156240	I.F.T.	FM
L202	1	LI10156230	I.F.T.	FM
L203	1	LC12230050	Choke Coil	22μH
L204	1	LC13320020	Choke Coil	3.3μH
L301	1	LS20010010	M.P.X. Coil	
L302	1	LS20010010	M.P.X. Coil	

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION		
			P800-POWER SUPPLY CIRCUIT BOARD		
P800	1	YF22850020	P.W. Board, Power Supply		
	1	ZZ22858020	P.W. Board Assembly		
			P800-CAPACITORS		
C802	1	EA47701690	Elect	470μF	16V
C803	1	EA47702590	Elect	470μF	25V
C804	1	DK18103510	Ceramic	0.01μF	
C805	1	DK18103510	Ceramic	0.01μF	
C806	1	EA47702590	Elect	470μF	25V
C807	1	EA22802590	Elect	2200μF	25V
C808	1	EA47702590	Elect	470μF	25V
C809	1	EA10625010	Elect	10μF	250V
C810	1	EA10625010	Elect	10μF	250V
C811	1	EA10635010	Elect	10μF	350V
C812	1	EA10635010	Elect	10μF	350V
C813	1	EA10702590	Elect	100μF	25V
C814	1	EA10701690	Elect	100μF	16V
C815	1	EQ10505010	Elect	1μF	50V
C816	1	EA47503590	Elect	4.7μF	35V
			P800-RESISTORS (All Resistors are ±5% and ¼W)		
R801	1	GD05562140	5.6KΩ		
R802	1	GD05104140	100KΩ		
R803	1	GD05103140	10KΩ		
R805	1	GG05331140	330Ω		
R806	1	GG05221140	220Ω		
R807	1	GW10822030	8.2KΩ	±10%	3W
R808	1	GG05301120	300Ω		½W
R809	1	GG05472140	4.7KΩ		
R810	1	GD05103140	10KΩ		
R811	1	GD05154140	150KΩ		
R812	1	GD05123140	12KΩ		
R813	1	GD05684140	680KΩ		
R814	1	GD05100140	10Ω		
R815	1	GD05153140	15KΩ		
R816	1	GD05102140	1KΩ		
R817	1	GD05104140	100KΩ		
R818	1	GA05330010	33Ω		1W
R819	1	GA05301010	300Ω		1W
R820	1	GD05473140	47KΩ		
R821	1	RF05100140	Fusible	10Ω	

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
			P800-SEMICONDUCTORS
Q801	1	HT309452A0	Transistor 2SC945 (Q or R)
Q802	1	HT309452A0	Transistor 2SC945 (Q or R)
Q803	1	HT403132A0	Transistor 2SD313 (D or E)
Q804	1	HD30027090	Zener WZ140
Q805	1	HD20005010	Diode W06B
Q806	1	HD20005010	Diode W06B
Q807	1	HD20014030	Diode DS130YA
Q808	1	HD20014030	Diode DS130YA
Q809	1	HD20021100	Diode 2DL15
Q810	1	HD30027090	Zener WZ140
Q811	1	HD20011050	Diode 1S1555
Q812	1	HD20011050	Diode 1S1555
Q813	1	HT309452A0	Transistor 2SC945 (Q or R)
Q814	1	HT309452A0	Transistor 2SC945 (Q or R)
Q815	1	HD20011050	Diode 1S1555
			P800-MISCELLANEOUS
F801	1	FS10125800	Fuse 1.25AT
F802	1	FS30500010	Fuse 50mAT
F803	1	FS30500010	Fuse 50mAT
F804	1	FS30500010	Fuse 50mAT
F805	1	FS10031800	Fuse 315mAT
J801 ? J810	10	YJ08000270	Jack, Fuse Holder
J821	1	YP06001310	Plug (6P)
			P900-SCOPE AMP. CIRCUIT BOARD
P900	1	YK22190310	P.W. Board, Scope Amp.
	1	ZZ22860310	P.W. Board Assembly
			P900-CAPACITORS
C901	1	DK18103820	Ceramic 0.01μF 1KV
C902	1	DK18103820	Ceramic 0.01μF 1KV
C903	1	DF17473520	Film 0.047μF ±20% 200V
			P900-RESISTORS (All Resistors are ±5% and ¼W)
R901	1	RT05224140	220KΩ
R902	1	RT05224140	220KΩ
R903	1	RT05224140	220KΩ
R904	1	RT05224140	220KΩ
R905	1	RT05682140	6.8KΩ
R906	1	RT05682140	6.8KΩ
R907	1	RT05222140	2.2KΩ
R908	1	RT05222140	2.2KΩ
R909	1	RT05103140	10KΩ
R910	1	RT05103140	10KΩ

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
R911	1	RT05103140	10KΩ
R912	1	RT05103140	10KΩ
R913	1	RT05683140	68KΩ
R914	1	RT05683140	68KΩ
R915	1	RT05623140	62KΩ
R916	1	RT05623140	62KΩ
R917	1	RT05823140	82KΩ
R918	1	RT05204140	200KΩ
R919	1	RT05105140	1MΩ
R920	1	RT05105140	1MΩ
R921	1	RT05224140	220KΩ
R922	1	RT05155140	1.5MΩ
R923	1	RT05153140	15KΩ
R924	1	RT05473140	47KΩ
R925	1	RA01030250	Trimming 10KΩ
R926	1	RA01030250	Trimming 10KΩ
R927	1	RA01020150	Trimming 1KΩ
R928	1	RA01020150	Trimming 1KΩ
R929	1	RT05204140	200KΩ
R930	1	RT05152140	1.5KΩ
R931	1	RA01030070	Trimming 10KΩ
R932	1	RT05473140	47KΩ
			P900-SEMICONDUCTORS
Q901	1	HF200304A0	F.E.T. 2SK30A
Q902	1	HF200304A0	F.E.T. 2SK30A
Q903	1	HF200304A0	F.E.T. 2SK30A
Q904	1	HF200304A0	F.E.T. 2SK30A
Q905	1	HT317562B0	Transistor 2SC1756 (D or E)
Q906	1	HT317562B0	Transistor 2SC1756 (D or E)
Q907	1	HT317562B0	Transistor 2SC1756 (D or E)
Q908	1	HT317562B0	Transistor 2SC1756 (D or E)
Q909	1	HD20003210	Diode 1S2471
Q910	1	HD20003210	Diode 1S2471
Q911	1	HD20001210	Diode 1S2473
			P900-MISCELLANEOUS
J901	1	YP06001630	Plug (8P)
J902	1	YP06001050	Plug (5P)
J903	1	YP06001050	Plug (5P)
J904	1	YB00140030	Connective Cord
J905	1	YB00180010	Connective Cord
J906	1	YB00140030	Connective Cord
J907	1	YB00120010	Connective Cord
J908	1	YB00140040	Connective Cord
J909	1	YB00150010	Connective Cord
J910	1	YB00180020	Connective Cord
J911	1	YB00200290	Connective Cord
J912	1	YB00180030	Connective Cord
J913	1	YB00210010	Connective Cord
J914	1	YJ06001310	Jack (6P)

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
			PR00-SCOPE SWITCH CIRCUIT BOARD
PR00	1	YK22861210	P.W. Board, Scope Switch
	1	ZZ22852210	P.W. Board Assembly
			PR00-CAPACITORS
CR01	1	DF17473050	Film 0.047μF ±20%
CR02	1	EV22403560	Elect 0.22μF 35V
CR03	1	EV22403560	Elect 0.22μF 35V
CR04	1	EV22403560	Elect 0.22μF 35V
CR05	1	DK18223320	Ceramic 0.022μF +100%—0
			PR00-RESISTORS
			(All Resistors are ±5% and ¼W)
RR01	1	GG05221140	220Ω
RR02	1	GA05181010	180Ω 1W
RR03	1	GD05473140	47KΩ
RR04	1	GD05473140	47KΩ
RR05	1	GD05394140	390KΩ
RR06	1	GD05183140	18KΩ
RR07	1	GD05473140	47KΩ
RR08	1	GD05273140	27KΩ
RR09	1	GD05473140	47KΩ
RR10	1	GD05183140	18KΩ
RR11	1	GD05103104	10KΩ
RR13	1	GD05473140	47KΩ
			PR00-MISCELLANEOUS
JR01	1	YJ06001330	Jack, (8P)
SR01	1	SP04040200	Push Switch, Scope
			PS00-FUNCTION SWITCH CIRCUIT BOARD
PS01	1	YH24751210	P.W. Board, Function Switch
	1	ZZ24751210	P.W. Board Assembly
SS01	1	SP08030080	Push Switch
SS02	1	SP08030090	Push Switch
SS03	1	SS07020030	Slide Switch
SS04	1	SB11440010	Switch Band
			PT00-MODE SWITCH CIRCUIT BOARD
PT00	1	YH24751220	P.W. Board, Mode Switch
	1	ZZ24758220	P.W. Board Assembly
			PT00-SEMICONDUCTOR
QT01	1	HD20011050	Diode 1S1555
			PT00-SWITCH
ST00	1	SP02020433	Push Switch, Mode

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
			PU01-FUNCTION CIRCUIT BOARD
PU01	1	YF24750010	P.W. Board, Function
	1	ZZ24750010	P.W. Board Assembly
			PU01-CAPACITORS
CU01	1	CT11000010	Trimming 10pF
CU02	1	CT15000010	Trimming 50pF
CU03	1	DD16680010	Ceramic 68pF ±10%
CU04	1	CT15000010	Trimming 50pF
CU05	1	DF66181500	Film 180pF ±10%
CU06	1	CT11000010	Trimming 10pF
CU07	1	DF65391010	Film 390pF ±5%
CU08	1	DD12100010	Ceramic 10pF ±1pF
			PU01-COILS
LU01	1	LO10010520	OSC Coil (LW)
LU02	1	LO10010480	OSC Coil (MW)
			PY00-LED CIRCUIT BOARD
PY00	1	YK22861220	P.W. Board, LED
	1	ZZ24758220	P.W. Board Assembly
			PY00-RESISTORS
RY01	1	GD05122140	1.2KΩ ±5% ¼W
RY02	1	GD05122140	1.2KΩ ±5% ¼W
RY03	1	GD05122140	1.2KΩ ±5% ¼W
			PY00-SEMICONDUCTORS
QY01	1	HI10004030	L.E.D.
QY02	1	HI10004030	L.E.D.
QY03	1	HI10004030	L.E.D.
			PZ01-DIAL ILLUMINATOR CIRCUIT BOARD
PZ01	1	YF22860020	P.W. Board, Dial Illuminator
	1	ZZ22861020	P.W. Board Assembly
JZ03 ~ JZ14	12	YJ08000170	Jack, Lamp Holder
VZ01 ~ VZ06	6	IN10080070	Dial Lamp 0.2A 8V

(W01-99)	**Assembly and Wiring**
(T01-99)	**Adjustment**
(X01-00)	**Correction**

9. TECHNICAL SPECIFICATIONS

FM TUNER SECTION

Frequency Range	87.5~108 MHz
Usable Sensitivity 40 kHz Deviation, 98 MHz	
Mono, S/N 26 dB	1.4 μV
Stereo, S/N 46 dB	45 μV
Alternate Channel Selectivity, 98 MHz ± 300 kHz	75 dB
Image Response Rejection, 98 MHz	60 dB
IF Rejection, 98 MHz	98 dB
Spurious Response Rejection, 98 MHz	98 dB
AM Suppression, 98 MHz	59 dB
Signal-to-Noise Ratio, 98 MHz	
Unweighted: Mono	65 dB
Stereo	60 dB
Weighted: Mono	68 dB
Stereo	64 dB
Pilot Signal & Subcarrier Rejection	
19 kHz	68 dB
38 kHz	74 dB
Total Harmonic Distortion, 98 MHz	
Mono	0.06%
Stereo	0.17%
Frequency Response	
30 Hz~15 kHz	+0, –0.4 dB
Separation	
Stereo	55 dB
Channel Balance	0.3 dB
Output Voltage, 1 kHz	560 mV
Output Impedance, 1 kHz	1.0 kohms
Acceptable Load Impedance, 1 kHz	10 kohms
Antenna Terminals	
Balanced	300 ohms
Unbalanced	75 ohms

MW TUNER SECTION

Frequency Range	515~1650 kHz
Usable Sensitivity (26 dB S/N 30% Mod., 1 MHz)	25 μV
Selectivity, 1 MHz ±9 kHz	46 dB
Image Rejection, 1 MHz	50 dB
IF Rejection, 1 MHz	40 dB
Spurious Response Rejection, 1 MHz	105 dB
Signal-to-Noise Ratio, 1 MHz	60 dB
Frequency Response, 1 MHz ± 3 dB	40 Hz~2.6 kHz
Total Harmonic Distortion, 1 MHz	0.5%

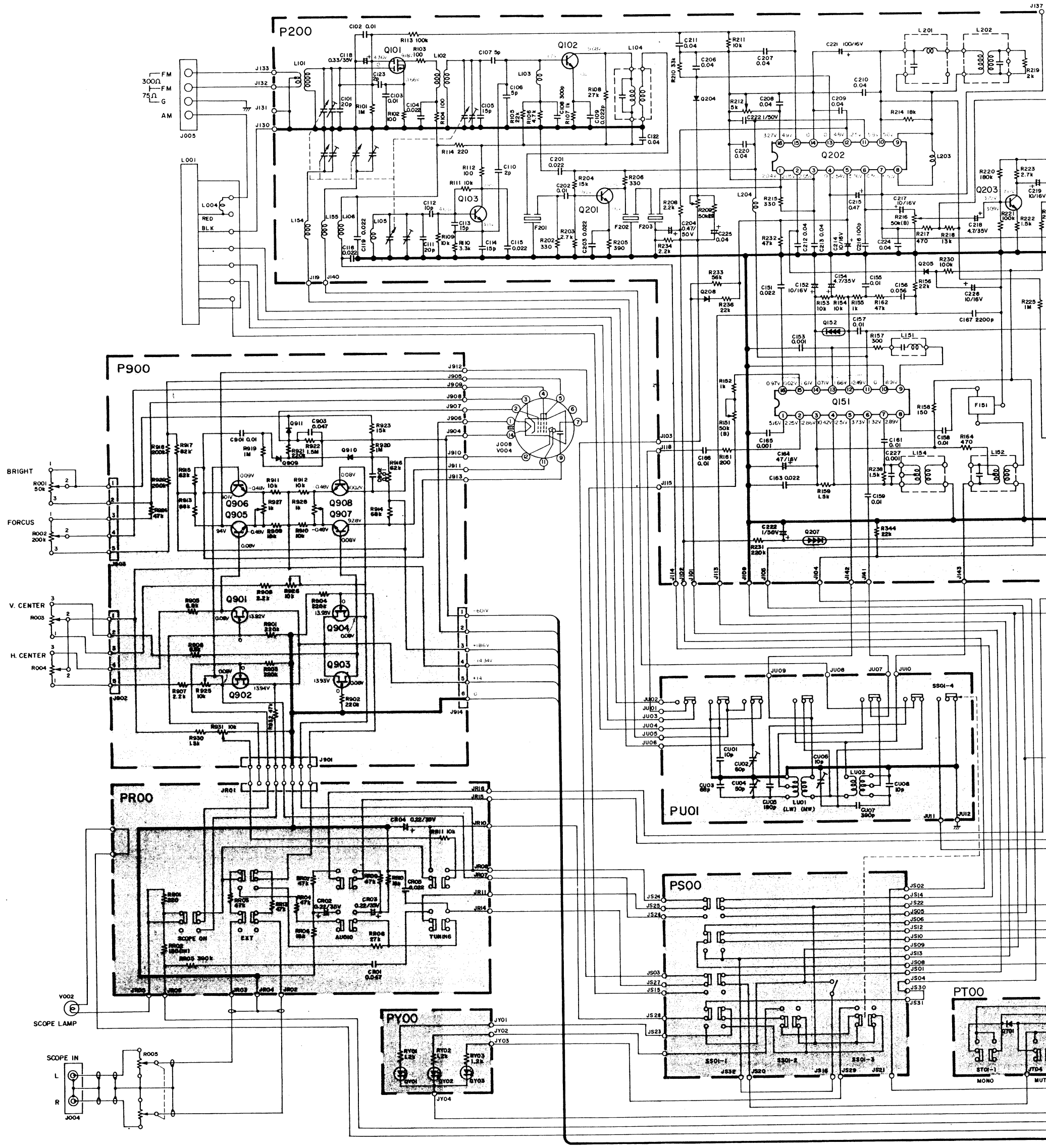
LW TUNER SECTION

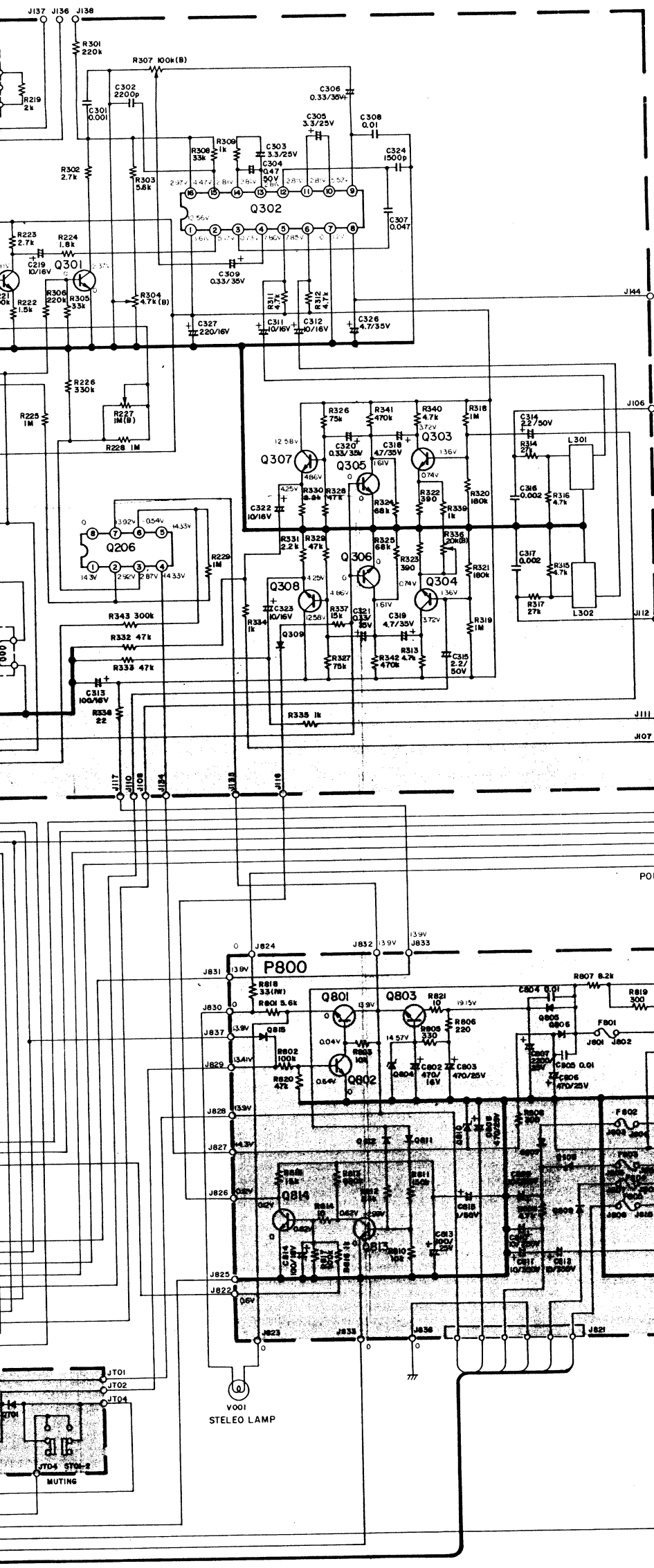
Frequency Range	145~380 kHz
Usable Sensitivity (26 dB S/N 30% Mod., 250 kHz)	250 μV
Selectivity, 250 kHz ± 9 kHz	24 dB
Image Rejection, 250 kHz	37 dB
IF Rejection, 250 kHz	43 dB
Spurious Response Rejection, 250 kHz	84 dB
Signal-to-Noise Ratio, 250 kHz	51 dB
Frequency Response, 250 kHz ± 3 dB	40 Hz~1.1 kHz
Total Harmonic Distortion, 250 kHz	0.5%

GENERAL

Power Requirements	220 V AC, 50 Hz (E and N versions are featuring an external voltage selector for use on 110/120/240 V. Other versions can be converted by a qualified technician to operate on 110/120/240 V.)
Power Consumption	30 W
Semiconductor Complement	
Integrated Circuits	4
Transistors	20
Diodes	19
Field Effect Transistors	5
Dimensions	
Panel Width	416 mm (16-3/8")
Panel Height	146 mm (5-3/4")
Depth	301 mm (11-7/8")
Weight	
Unit alone	8.5 kg (18.7 lbs)
Packed for shipment	10.5 kg (23.1 lbs)

SCHEMATIC DIAGRAM





Q101
HF400451B0
3SK45B

Q102, Q201
HT310471C0
2SC1047(C)

Q103
HT308291C0
2SC829(C)

Q151
HC10019010
HA1197

Q152, Q207
HV00006120
MV-203

Q202
HC10033010
HA11225

Q203, Q301, Q305, Q306
HT309452A0
2SC945(P or Q)

Q204, Q205, Q208
HD20011050
IS1555

Q206
HC10019060
μPC741C

Q302
HC10029010
HA11223

Q303, Q304, Q307, Q308
HT317400S0
2SC1740LN(S)

Q309
HD30033090
WZ052

Q801, Q802
HT309452A0
2SC945(Q or R)

Q803
HT403132A0
2SD313(D or E)

Q804, Q810
HD30027090
WZ140

Q805, Q806
HD20005010
W06B

Q807, Q808
HD20014030
DS130YA

Q811, Q812, Q815
HD20011050
IS1555

Q813, Q814
HT309452A0
2SC945(Q or R)

Q901 ~ Q904
HF200304A0
2SK30A

Q905 ~ Q908
HT317562B0
2SC1756(D or E)

Q909, Q910
HD20003210
IS2471

Q911
HD20001210
IS2473

QT01
HD20011050
IS1555

QY01 ~ QY03
HI10004030
L.E.D